Analytical Resources, LLC
Analytical Chemists and Consultants

16 June 2022

Andrea Fletcher
HydroGeoLogic, Inc.
6340 Glenwood, Building 7, Suite 200
Overland Park, KS 66202

RE: Portland Harbor Superfund Site 2021-2022

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
22E0325	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Kelly Bottem, Client Services Manager

Cert# 100006-012

ALS Environmental Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Todd Poyfair

Project Number: K2204961
Project Manager: Todd Poyfair
QAP: LAB QAP

22E0325

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Hg T 7470A	Metals T 6020A	PCB 8082A
K2204961-011	SIB-SW-AAM131-CAR-ST-050522	0	Storm Water	5/5/22	0925	ARI	X	X	
K2204961-012	SIB-SW-AAQ005-CAR-ST-050522	0	Storm Water	5/5/22	0845	ARI	X	X	
K2204961-013	SIB-SW-AAM169-CAR-ST-050522	0	Storm Water	5/5/22	1438	ARI	X	X	
K2204961-014	SIB-SW-AAM107-CAR-ST-050522	0	Storm Water	5/5/22	1518	ARI	X	X	
K2204961-015	SIB-SW-AAP957-CAR-ST-050522	0	Storm Water	5/5/22	1640	ARI	X	X	
K2204961-021	SIB-SW-WR198-050522	1	Storm Water	5/5/22		ARI	X	X	X
K2204961-022	SIB-SW-WR186-050522	1	Storm Water	5/5/22		ARI	X	X	X
K2204961-023	SIB-SW-WR15-050522	1	Storm Water	5/5/22		ARI	X	X	X
K2204961-024	SIB-SW-WR428-050522	1	Storm Water	5/5/22		ARI	X	X	X
K2204961-025	SIB-SW-WR71-050522	1	Storm Water	5/5/22		ARI	X	X	X

Folder Comments:

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
____ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 05/27/22

Report Requirements
____ I. Results Only
____ II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
X IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# 51K2204961
Bill to

Relinquished By: [signature] 5/19/22 Received By: [signature] 5/20/22 1040am Airbill Number:

K2204961

_____ **Ship To: ARI**
Analytical Resources, Incorporated
4611 So. 134th Place
Suite 100
Tukwila, WA 98168

PC _____ Date 5/18/22
SMO RH Date 5/19/22

Instructions:
Ice X
Dry Ice _____
No Ice _____

Shipping:
Overnight X
2nd Day _____
Ground _____

Bill to Client Account _____

Comments:

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ALS / HGL

COC No(s): _____ NA

Assigned ARI Job No: 2205325

Project Name: R22021961

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: 5328 5608 5163 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 10:40 1.6 ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D0025605

Cooler Accepted by: UD Date: 5/20/22 Time: 10:40

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible? ALS # only		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	_____	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SD Date: 05/20/22 Time: 1243 Labels checked by: _____

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, LLC
Analytical Chemists and Consultants

HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022	
6340 Glenwood, Building 7, Suite 200	Project Number:	Portland Harbor Superfund Site 2021-2022	**Reported:**
Overland Park, KS 66202	Project Manager:	Andrea Fletcher	06/16/2022 16:38

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
22E0325-01	SIB-SW-WR198-050522	Water	05/05/22 00:00	05/20/22 10:40
22E0325-02	SIB-SW-WR186-050522	Water	05/05/22 00:00	05/20/22 10:40
22E0325-03	SIB-SW-WR15-050522	Water	05/05/22 00:00	05/20/22 10:40
22E0325-04	SIB-SW-WR428-050522	Water	05/05/22 00:00	05/20/22 10:40
22E0325-05	SIB-SW-WR71-050522	Water	05/05/22 00:00	05/20/22 10:40

HydroGeoLogic, Inc.	Project: Portland Harbor Superfund Site 2021-2022	
6340 Glenwood, Building 7, Suite 200	Project Number: Portland Harbor Superfund Site 2021-2022	**Reported:**
Overland Park KS, 66202	Project Manager: Andrea Fletcher	16-Jun-2022 16:38

Case Narrative

Client: HydroGeoLogic, Inc
Project: Portland Harbor
Work Order: 22E0325

Sample receipt

Samples as listed on the preceding page were received 5/20/22 under ARI work order 22E0325. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Analytical Resources, LLC
Analytical Chemists and Consultants

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
P	The reported value is greater than 25% difference between the concentrations determined on two GC columns where applicable.
J	Estimated concentration value detected below the reporting limit.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

SIB-SW-WR198-050522

Dual Column

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.				
Project:	Portland Harbor Superfund Site 2021-2022				
Matrix:	Water	Laboratory ID:	22E0325-01 A	File ID:	06132214ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 20:51
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BKE0708	Sequence:	SKF0183	Calibration:	FD00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	0.002	0.002	0.010	U
11104-28-2	Aroclor 1221	1	1	0.002	0.002	0.010	U
11141-16-5	Aroclor 1232	1	1	0.002	0.002	0.010	U
53469-21-9	Aroclor 1242	1	1	0.002	0.002	0.010	U
12672-29-6	Aroclor 1248	1	1	0.002	0.002	0.010	U
11097-69-1	Aroclor 1254	1	1	0.002	0.002	0.010	U
11096-82-5	Aroclor 1260	1	1	0.003	0.003	0.010	U
37324-23-5	Aroclor 1262	1	1	0.003	0.003	0.010	U
11100-14-4	Aroclor 1268	1	1	0.003	0.003	0.010	U

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0142*	*70.9*	*29 - 120*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0148*	*74.0*	*32 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132214ECD7.D
Data file 2: /220613.b/220613.b/06132214ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 22E0325-01
Client ID:
Injection Date: 13-JUN-2022 20:51
Report Date: 06/15/2022 10:36
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.858	0.002	166664	5.749	0.000	307311	29.6	26.9	9.4	Tetrachloro-m-xylene
13.926	-0.006	182423	14.178	-0.009	790311	28.4	30.7	7.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	419495	-13.7
Hexabromobiphenyl	571136	620186	8.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	894875	-2.2
Hexabromobiphenyl	1789656	1759025	-1.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.956 - 13.832) = 108858 Col1 Total PCB = 0.0 ppm*

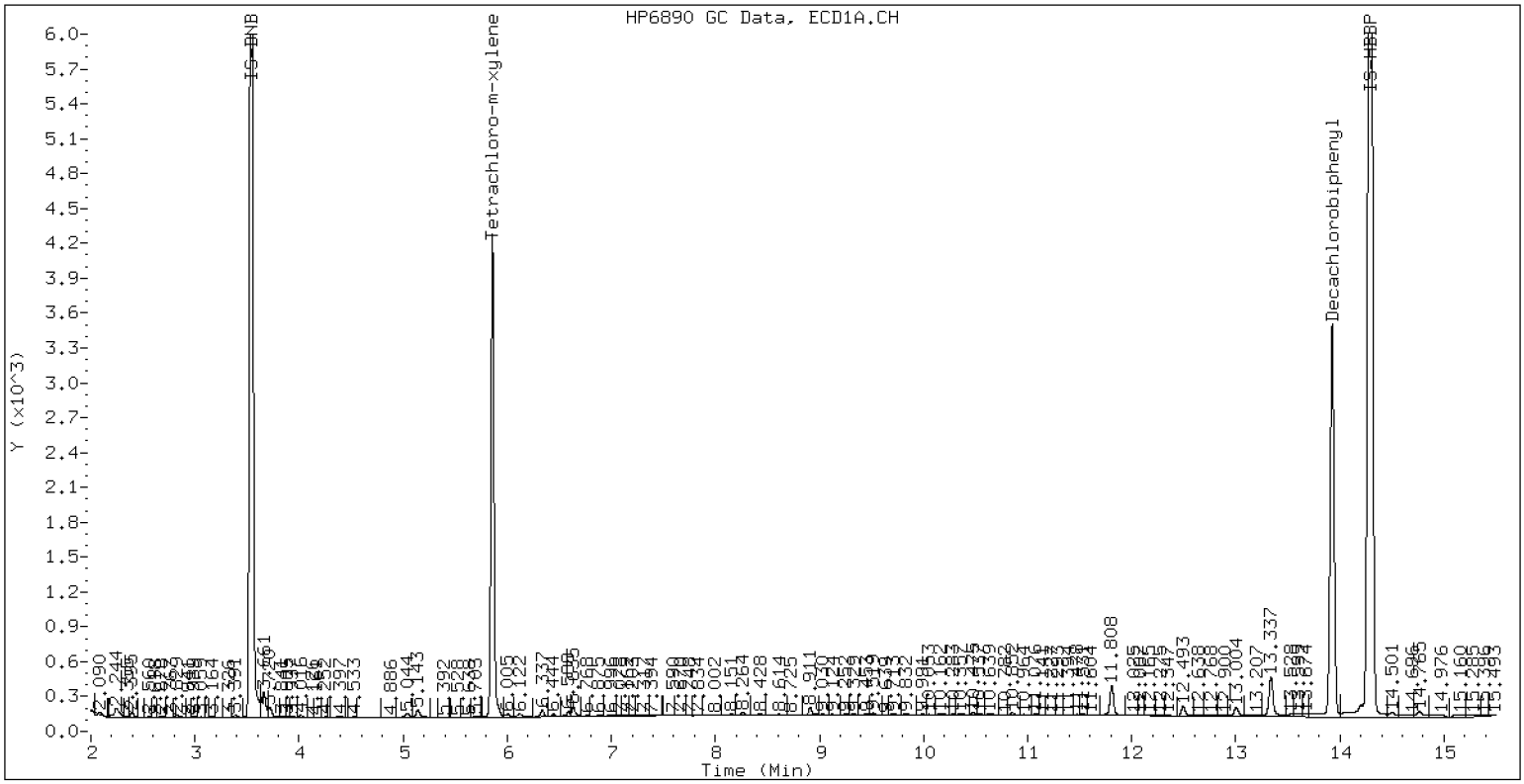
Total PCB Area Col2 (5.956 - 13.832) = 211966 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

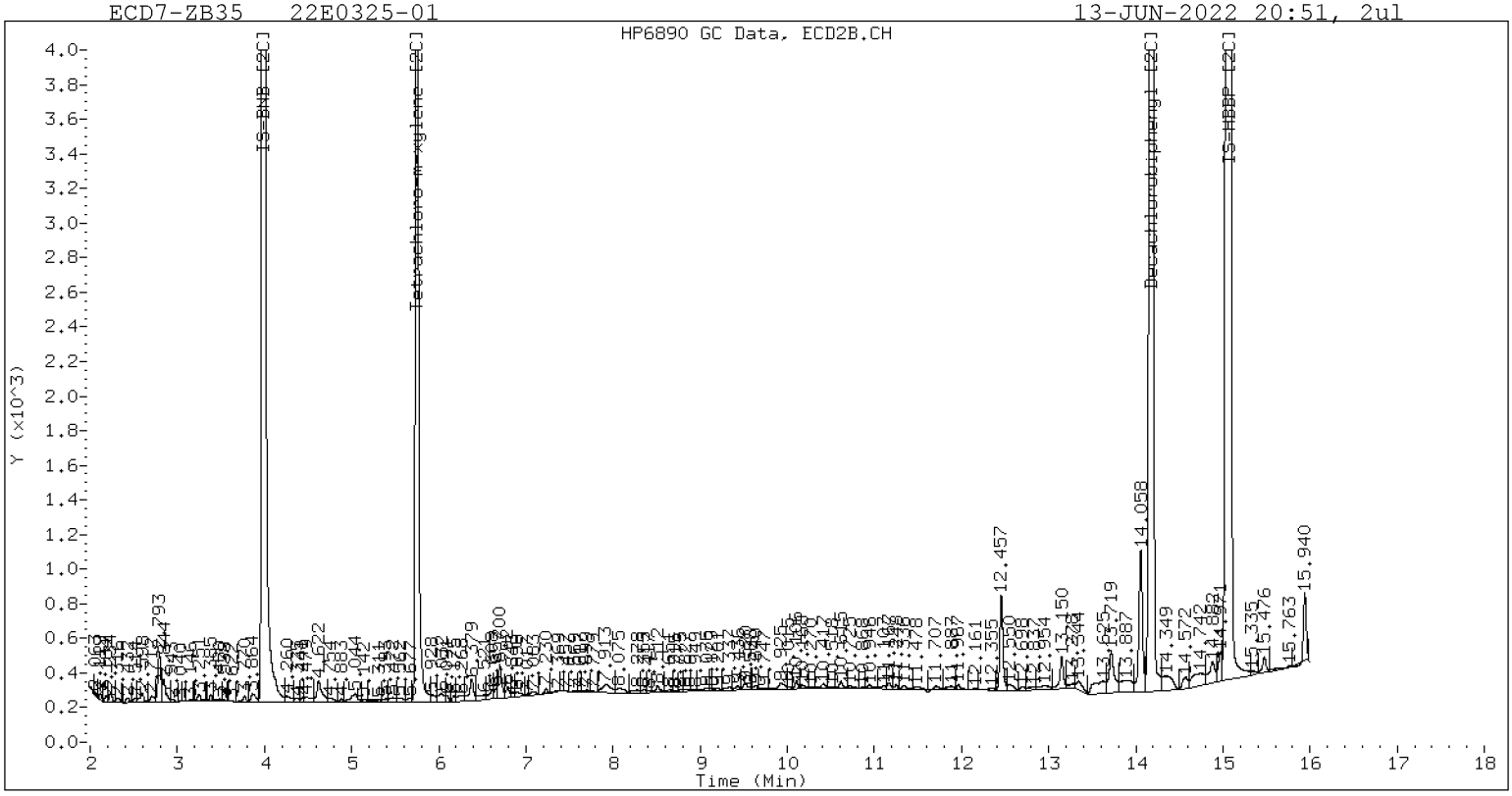
PCB Dual Column Chromatograms

ECD7-ZB5 22E0325-01 13-JUN-2022 20:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 22E0325-01 13-JUN-2022 20:51, 2ul

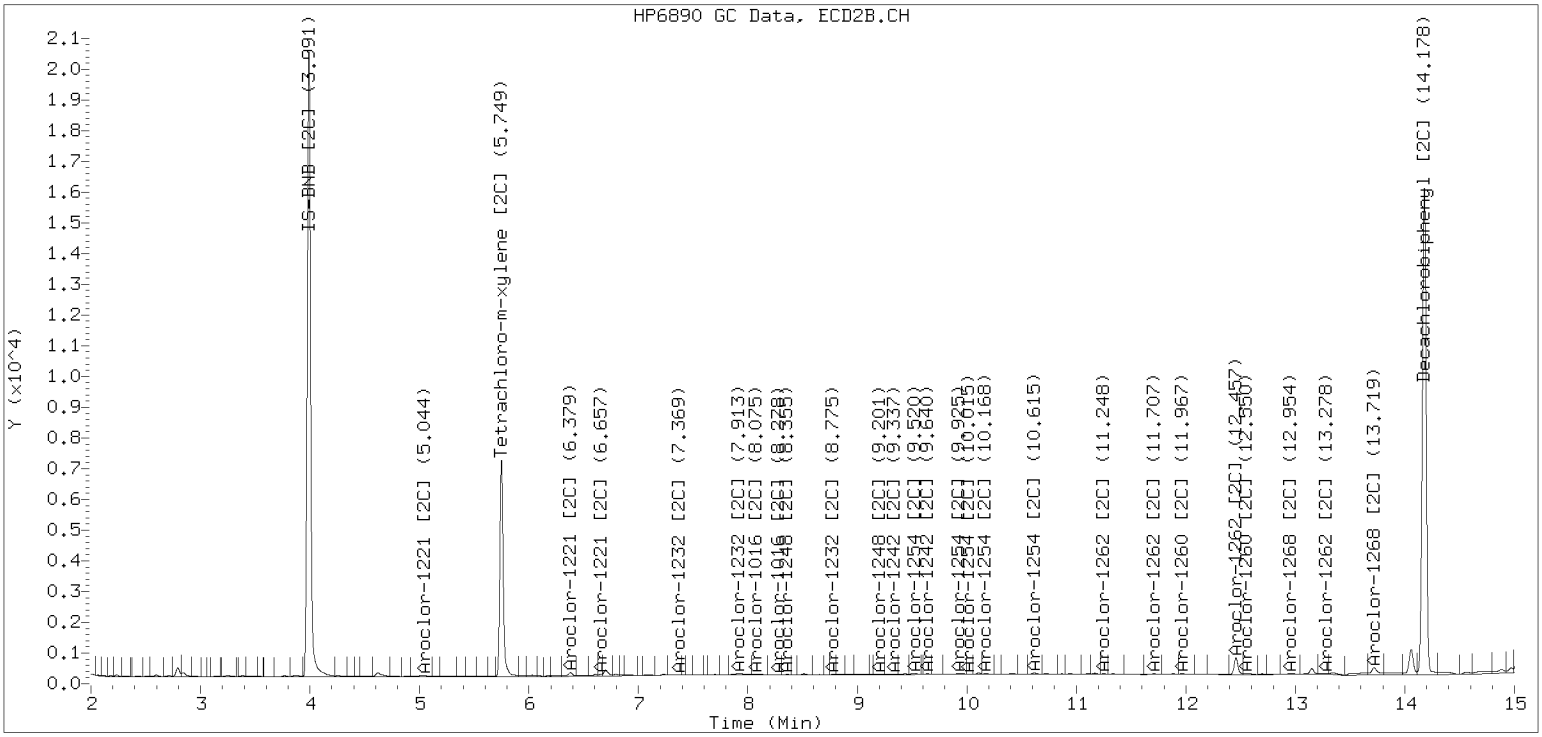


ZB-35 Manual Integration: NO

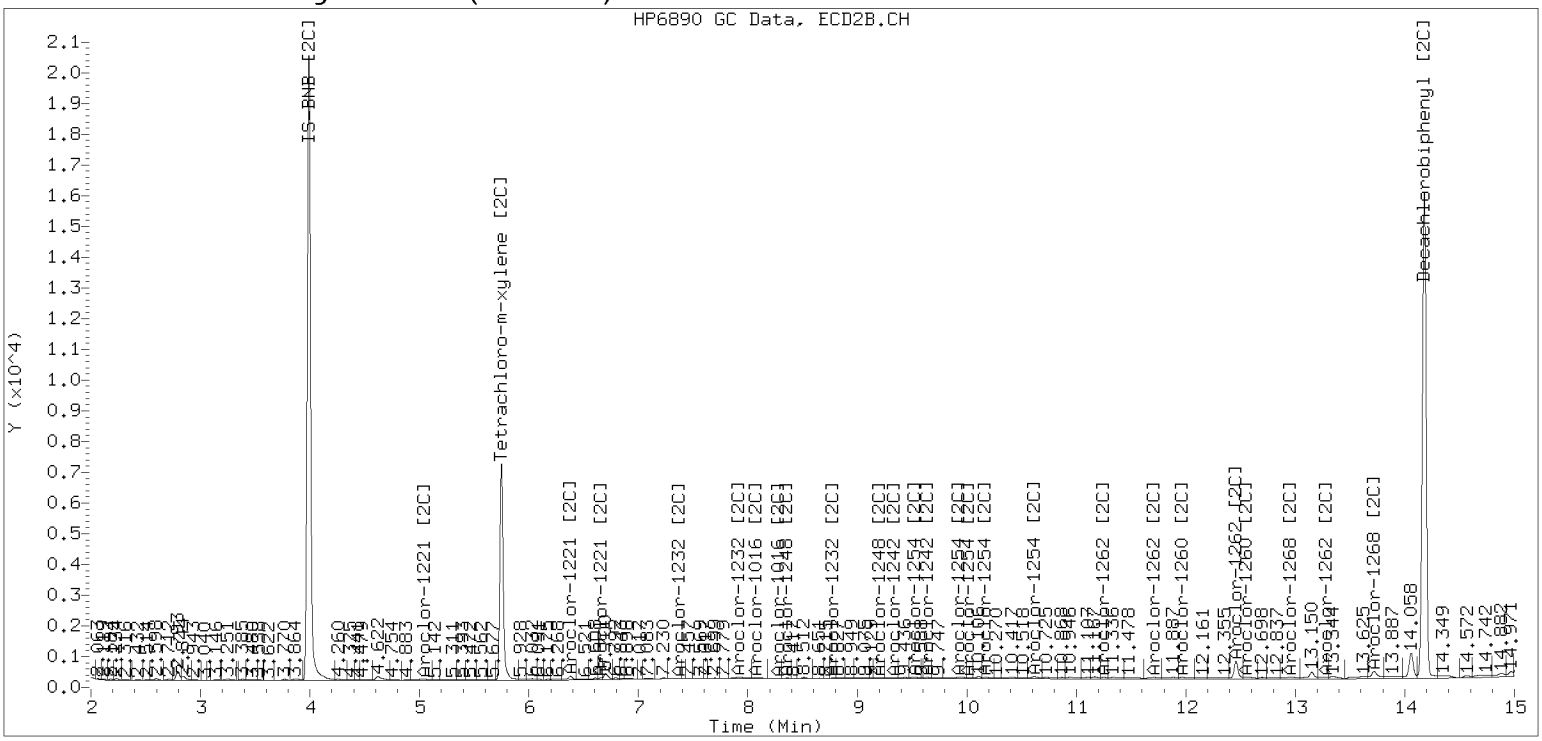
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/220613.b/220613.b/06132214ECD7.D Injection Date: 13-JUN-2022

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

SIB-SW-WR186-050522

Dual Column

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.				
Project:	Portland Harbor Superfund Site 2021-2022				
Matrix:	Water	Laboratory ID:	22E0325-02 A	File ID:	06132215ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 21:12
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BKE0708	Sequence:	SKF0183	Calibration:	FD00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	0.002	0.002	0.010	U
11104-28-2	Aroclor 1221	1	1	0.002	0.002	0.010	U
11141-16-5	Aroclor 1232	1	1	0.002	0.002	0.010	U
53469-21-9	Aroclor 1242	1	1	0.002	0.002	0.010	U
12672-29-6	Aroclor 1248	1	1	0.002	0.002	0.010	U
11097-69-1	Aroclor 1254	1	1	0.005	0.002	0.010	J
11096-82-5	Aroclor 1260	1	1	0.003	0.003	0.010	U
37324-23-5	Aroclor 1262	1	1	0.003	0.003	0.010	U
11100-14-4	Aroclor 1268	1	1	0.003	0.003	0.010	U

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0109*	*54.5*	*29 - 120*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0136*	*67.8*	*32 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132215ECD7.D
Data file 2: /220613.b/220613.b/06132215ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 22E0325-02
Client ID:
Injection Date: 13-JUN-2022 21:12
Report Date: 06/15/2022 10:36
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.857	0.000	159427	5.748	-0.001	296729	27.1	25.5	6.0	Tetrachloro-m-xylene
13.926	-0.006	139893	14.179	-0.008	564879	21.8	21.3	2.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	438195	-9.8
Hexabromobiphenyl	571136	619047	8.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	911263	-0.4
Hexabromobiphenyl	1789656	1814813	1.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	9.326	-0.008	4145	11.9	1	9.496	-0.007	2994	4.9
Aroclor-1254	2	9.410	-0.002	1186	9.8	2	9.919	-0.014	2694	11.6
Aroclor-1254	3	9.692	-0.010	3050	13.6	3	10.014	-0.011	1947	4.0
Aroclor-1254	4	9.830	-0.008	2719	6.5	4	10.165	-0.011	5504	5.1
Aroclor-1254	5	10.172	-0.016	3269	7.3	5	10.611	-0.012	4484	9.2
	Total Col1Ave (5 peaks):			9.8		Total Col2Ave (5 peaks):			7.0	RPD = 34
	Corrected Ave (4 peaks):			8.9		Corrected Ave (4 peaks):			5.8	RPD = 41*
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.956 - 13.832) = 603466 Col1 Total PCB = 0.2 ppm*

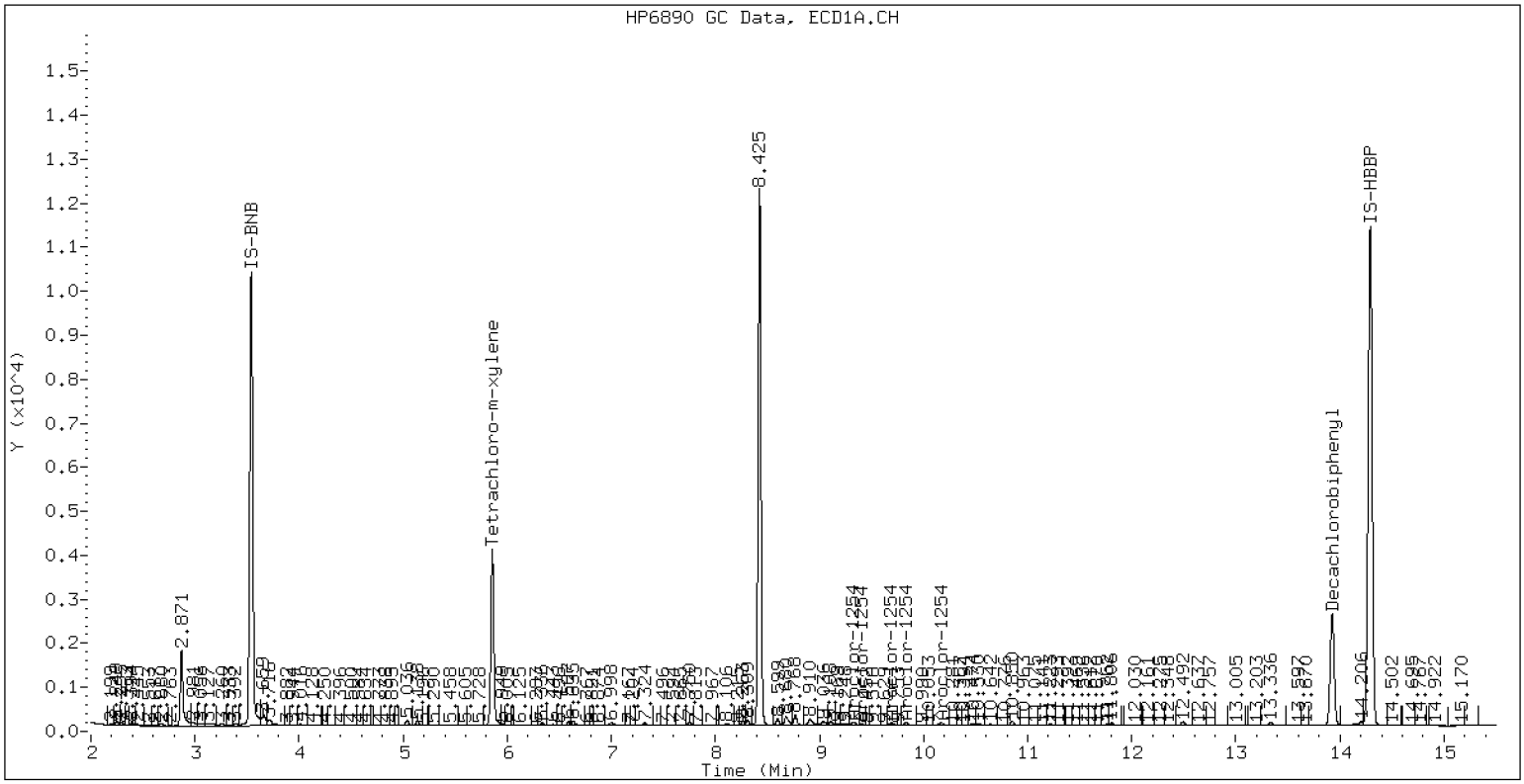
Total PCB Area Col2 (5.956 - 13.832) = 1235599 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

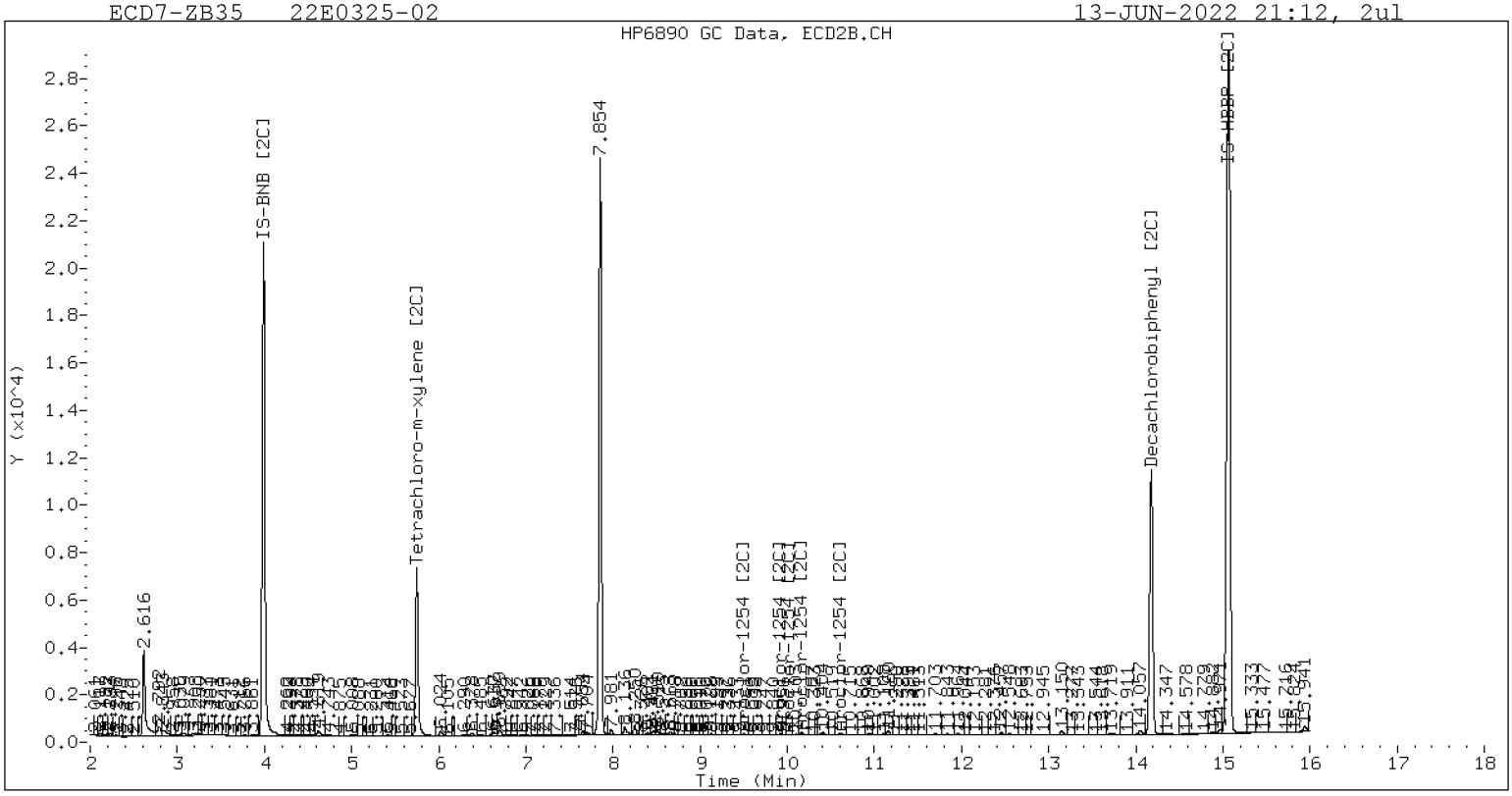
PCB Dual Column Chromatograms

ECD7-ZB5 22E0325-02 13-JUN-2022 21:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 22E0325-02 13-JUN-2022 21:12, 2ul

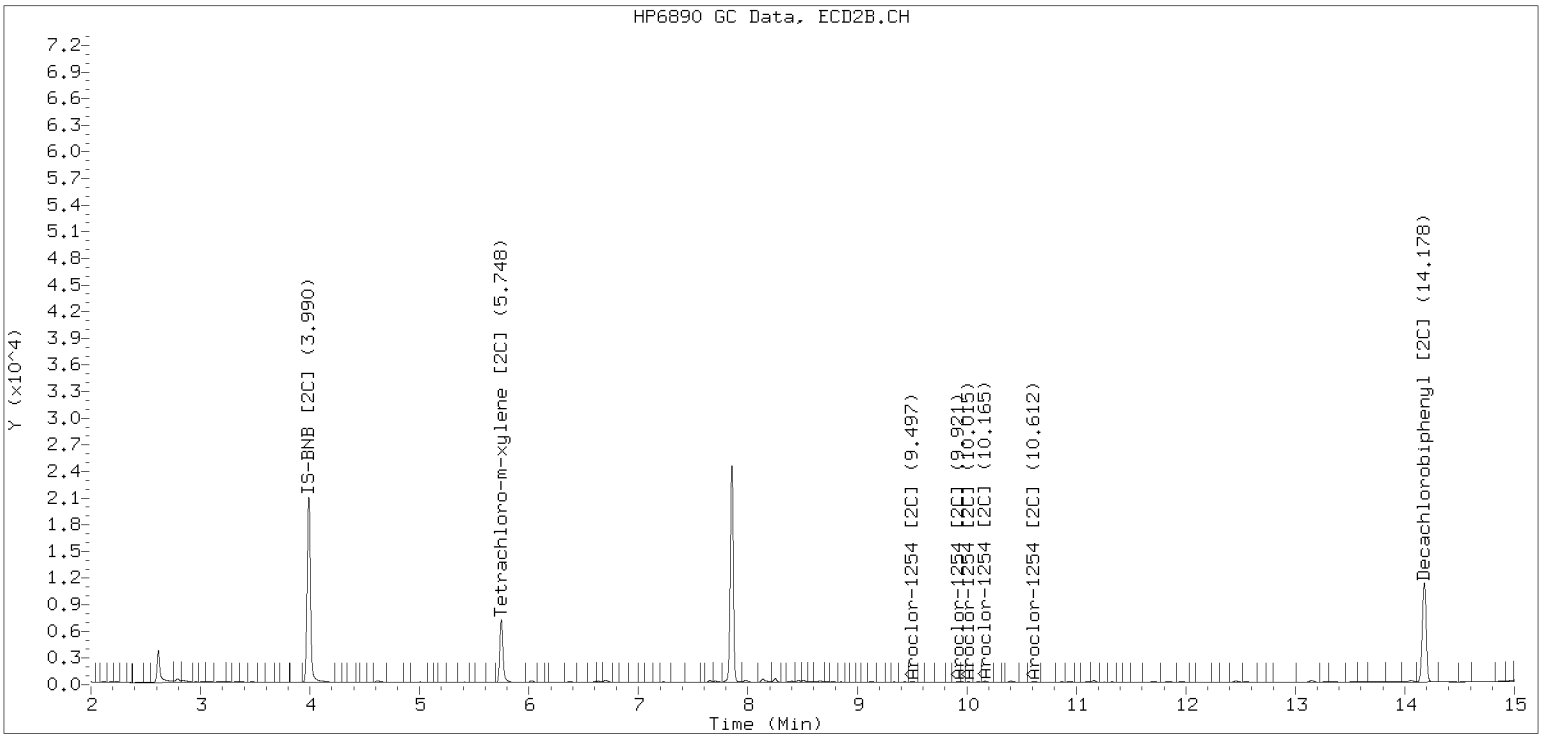


ZB-35 Manual Integration: YES

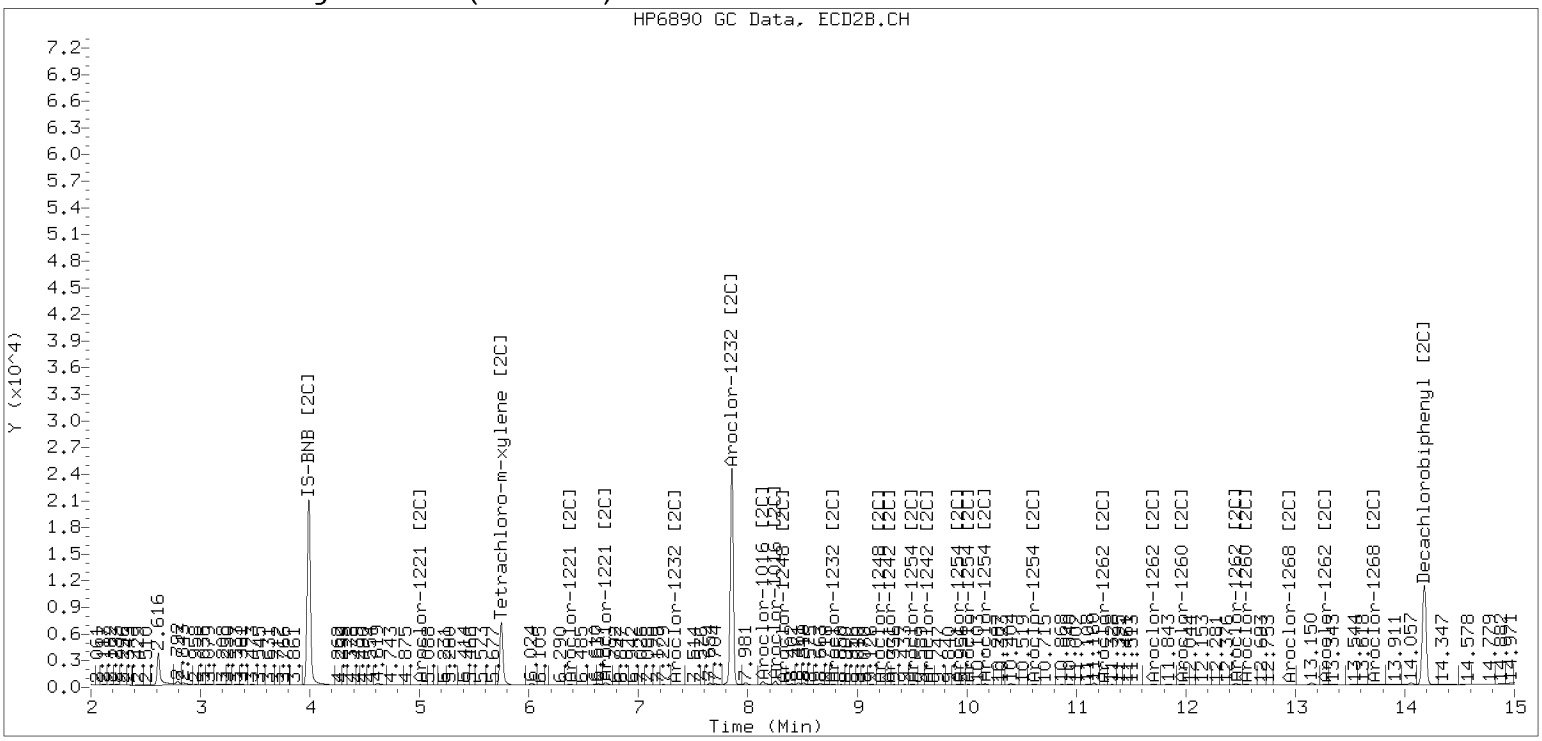
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/220613.b/220613.b/06132215ECD7.D Injection Date: 13-JUN-2022

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

SIB-SW-WR15-050522

Dual Column

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.				
Project:	Portland Harbor Superfund Site 2021-2022				
Matrix:	Water	Laboratory ID:	22E0325-03 A	File ID:	06132216ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 21:33
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BKE0708	Sequence:	SKF0183	Calibration:	FD00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	0.002	0.002	0.010	U
11104-28-2	Aroclor 1221	1	1	0.002	0.002	0.010	U
11141-16-5	Aroclor 1232	1	1	0.002	0.002	0.010	U
53469-21-9	Aroclor 1242	1	1	0.002	0.002	0.010	U
12672-29-6	Aroclor 1248	1	1	0.002	0.002	0.010	U
11097-69-1	Aroclor 1254	1	1	0.002	0.002	0.010	U
11096-82-5	Aroclor 1260	1	1	0.014	0.003	0.010	
37324-23-5	Aroclor 1262	1	1	0.003	0.003	0.010	U
11100-14-4	Aroclor 1268	1	1	0.003	0.003	0.010	U

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0152*	*76.2*	*29 - 120*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0152*	*76.0*	*32 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132216ECD7.D
Data file 2: /220613.b/220613.b/06132216ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 22E0325-03
Client ID:
Injection Date: 13-JUN-2022 21:33
Report Date: 06/15/2022 10:36
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	0.002	167191	5.751	0.002	303147	30.4	27.4	10.3	Tetrachloro-m-xylene
13.927	-0.005	170498	14.179	-0.008	680607	30.5	34.3	11.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	409681	-15.7
Hexabromobiphenyl	571136	539552	-5.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	867002	-5.2
Hexabromobiphenyl	1789656	1355398	-24.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	11.077	-0.005	6475	25.4	1	11.705	-0.006	15665	27.9
Aroclor-1260	2	11.469	-0.006	3658	26.6	2	11.966	-0.007	41052	27.8
Aroclor-1260	3	11.762	-0.007	21940	36.0	3	12.550	-0.010	23659	24.1
Aroclor-1260	4	12.164	-0.010	8203	26.5	4	13.276	-0.009	10737	26.4
Aroclor-1260	5	12.277	-0.005	3559	27.1	NS	---			----
	Total Col1Ave (5 peaks):				28.3	Total Col2Ave (4 peaks):			26.6	RPD = 6
	Corrected Ave (4 peaks):				26.4	Corrected Ave (3 peaks):			26.1	RPD = 1
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.956 - 13.832) = 189583 Col1 Total PCB = 0.1 ppm*

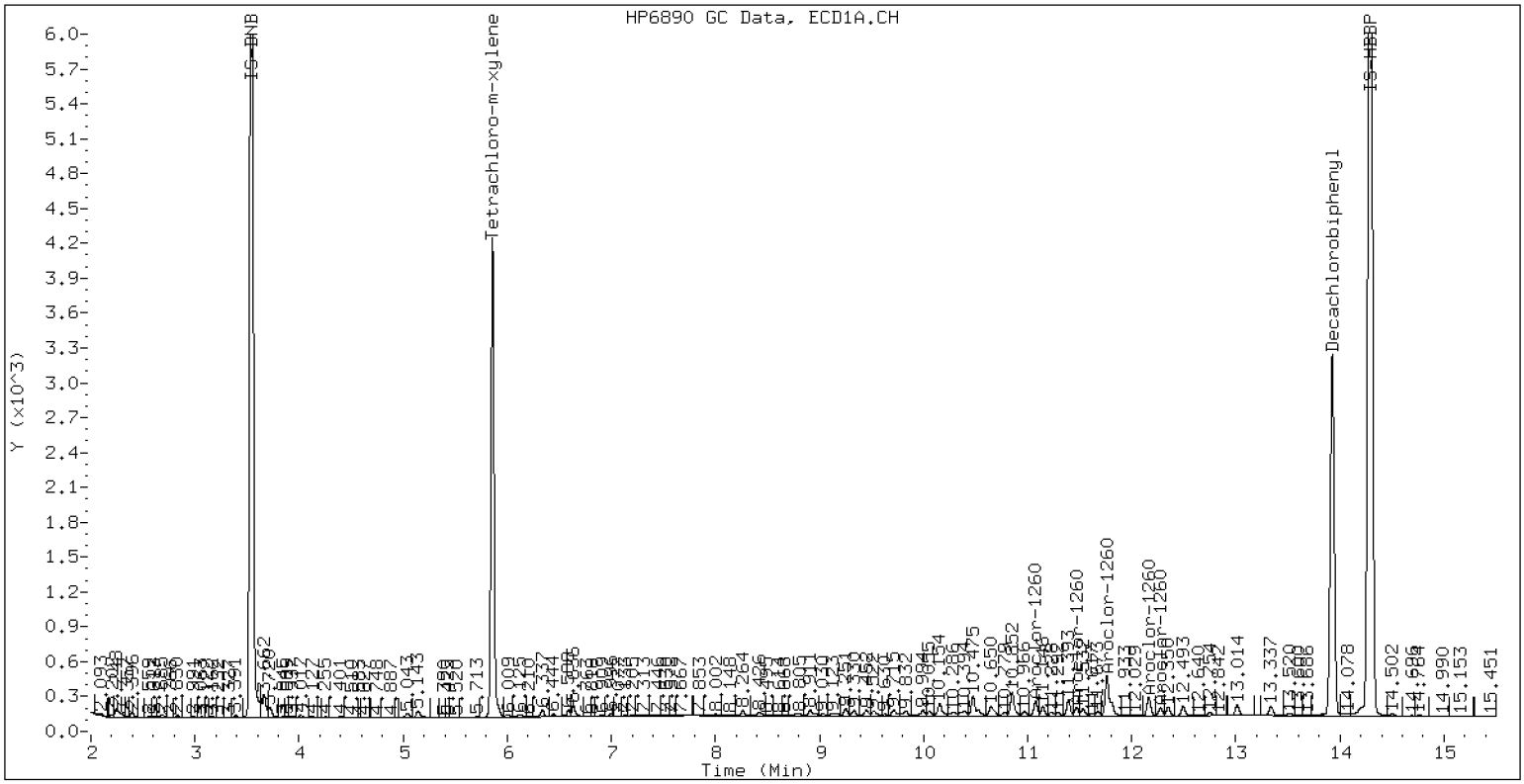
Total PCB Area Col2 (5.956 - 13.832) = 345206 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

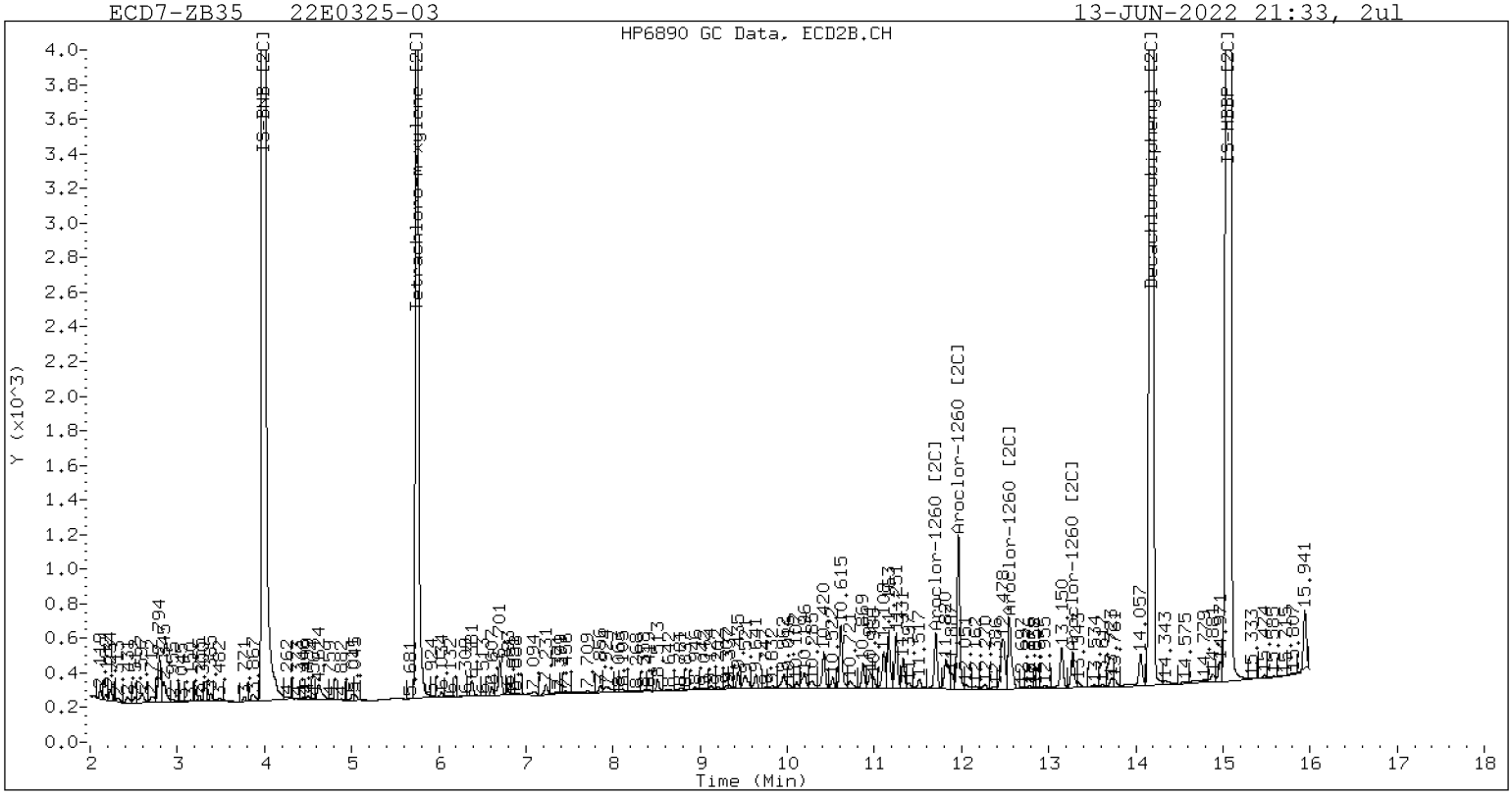
PCB Dual Column Chromatograms

ECD7-ZB5 22E0325-03 13-JUN-2022 21:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 22E0325-03 13-JUN-2022 21:33, 2ul

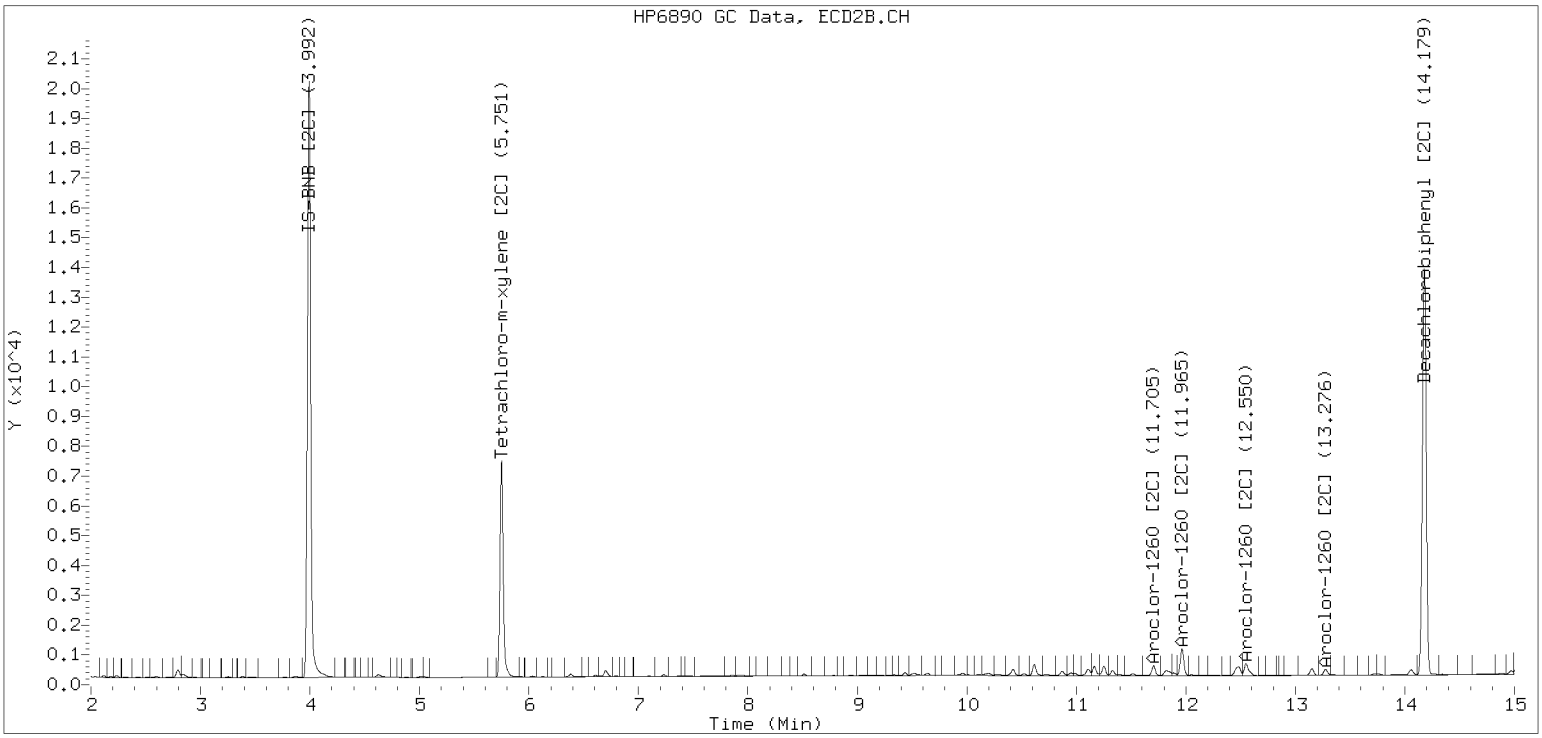


ZB-35 Manual Integration: YES

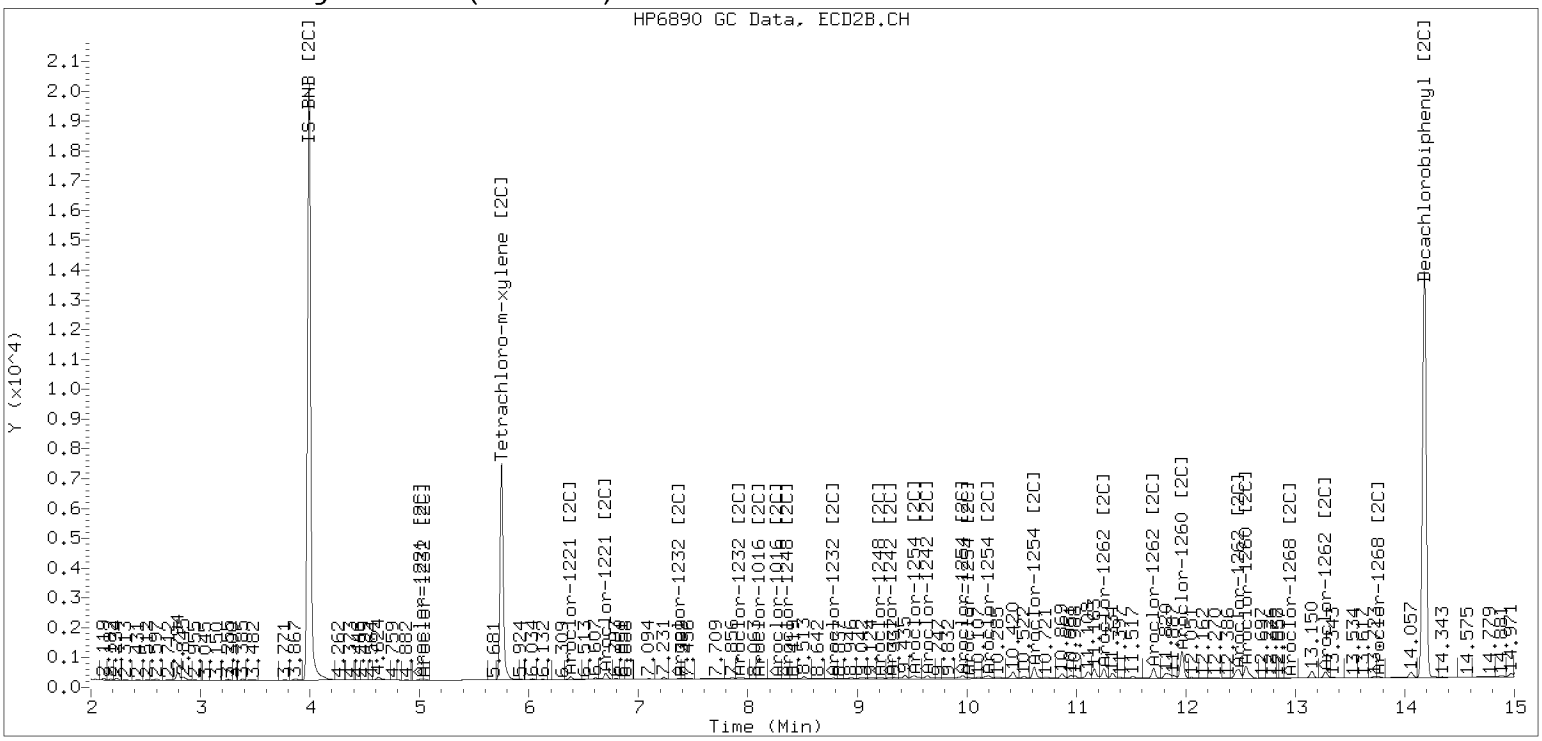
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/220613.b/220613.b/06132216ECD7.D Injection Date: 13-JUN-2022

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

SIB-SW-WR428-050522

Dual Column

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.				
Project:	Portland Harbor Superfund Site 2021-2022				
Matrix:	Water	Laboratory ID:	22E0325-04 A	File ID:	06132217ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 21:54
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BKE0708	Sequence:	SKF0183	Calibration:	FD00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	0.002	0.002	0.010	U
11104-28-2	Aroclor 1221	1	1	0.002	0.002	0.010	U
11141-16-5	Aroclor 1232	1	1	0.002	0.002	0.010	U
53469-21-9	Aroclor 1242	1	1	0.002	0.002	0.010	U
12672-29-6	Aroclor 1248	1	1	0.002	0.002	0.010	U
11097-69-1	Aroclor 1254	1	1	0.002	0.002	0.010	U
11096-82-5	Aroclor 1260	1	1	0.003	0.003	0.010	U
37324-23-5	Aroclor 1262	1	1	0.003	0.003	0.010	U
11100-14-4	Aroclor 1268	1	1	0.003	0.003	0.010	U

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0151*	*75.7*	*29 - 120*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0141*	*70.6*	*32 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132217ECD7.D
Data file 2: /220613.b/220613.b/06132217ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 22E0325-04
Client ID:
Injection Date: 13-JUN-2022 21:54
Report Date: 06/15/2022 10:36
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.858	0.002	159102	5.750	0.001	291588	28.3	25.6	9.7	Tetrachloro-m-xylene
13.929	-0.003	202353	14.184	-0.003	948771	30.3	34.7	13.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	419619	-13.6
Hexabromobiphenyl	571136	644681	12.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	891887	-2.5
Hexabromobiphenyl	1789656	1867069	4.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.956 - 13.832) = 166087 Col1 Total PCB = 0.0 ppm*

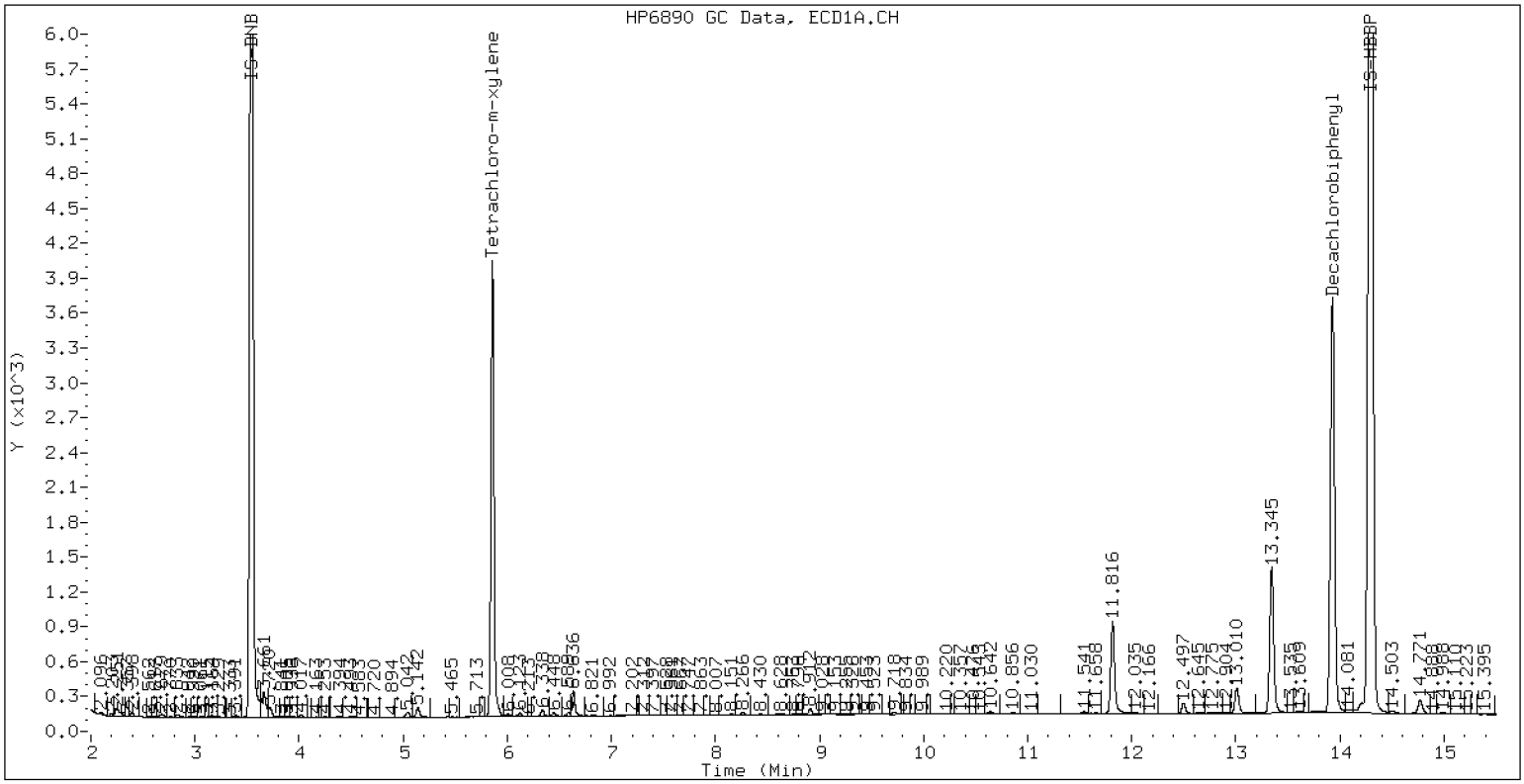
Total PCB Area Col2 (5.956 - 13.832) = 312042 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

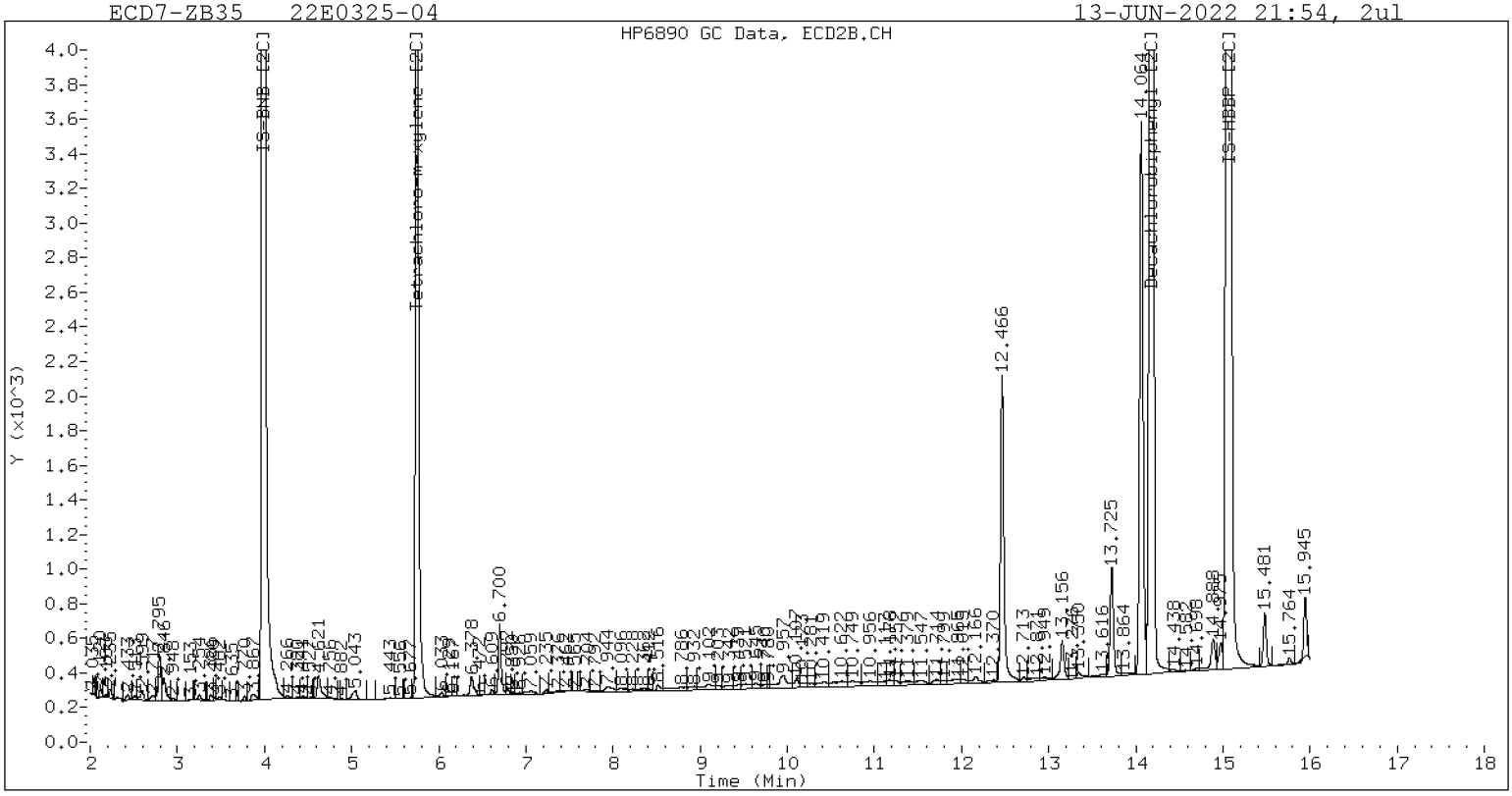
PCB Dual Column Chromatograms

ECD7-ZB5 22E0325-04 13-JUN-2022 21:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 22E0325-04 13-JUN-2022 21:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SIB-SW-WR71-050522

Dual Column

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.				
Project:	Portland Harbor Superfund Site 2021-2022				
Matrix:	Water	Laboratory ID:	22E0325-05 A	File ID:	06132218ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 22:15
% Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BKE0708	Sequence:	SKF0183	Calibration:	FD00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/L)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	0.002	0.002	0.010	U
11104-28-2	Aroclor 1221	1	1	0.002	0.002	0.010	U
11141-16-5	Aroclor 1232	1	1	0.002	0.002	0.010	U
53469-21-9	Aroclor 1242	1	1	0.002	0.002	0.010	U
12672-29-6	Aroclor 1248	1	1	0.002	0.002	0.010	U
11097-69-1	Aroclor 1254	1	1	0.002	0.002	0.010	U
11096-82-5	Aroclor 1260	1	1	0.003	0.003	0.010	U
37324-23-5	Aroclor 1262	1	1	0.003	0.003	0.010	U
11100-14-4	Aroclor 1268	1	1	0.003	0.003	0.010	U

SURROGATES	Col #	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.020000*	*0.0150*	*74.8*	*29 - 120*	
Tetrachlorometaxylene	*1*	*0.020000*	*0.0141*	*70.7*	*32 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132218ECD7.D
Data file 2: /220613.b/220613.b/06132218ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 22E0325-05
Client ID:
Injection Date: 13-JUN-2022 22:15
Report Date: 06/15/2022 10:36
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.858	0.001	158199	5.749	0.000	287604	28.3	25.7	9.7	Tetrachloro-m-xylene
13.928	-0.003	202872	14.183	-0.004	946442	29.9	34.6	14.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	416594	-14.3
Hexabromobiphenyl	571136	653830	14.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	878503	-4.0
Hexabromobiphenyl	1789656	1868567	4.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.956 - 13.832) = 202868 Col1 Total PCB = 0.1 ppm*

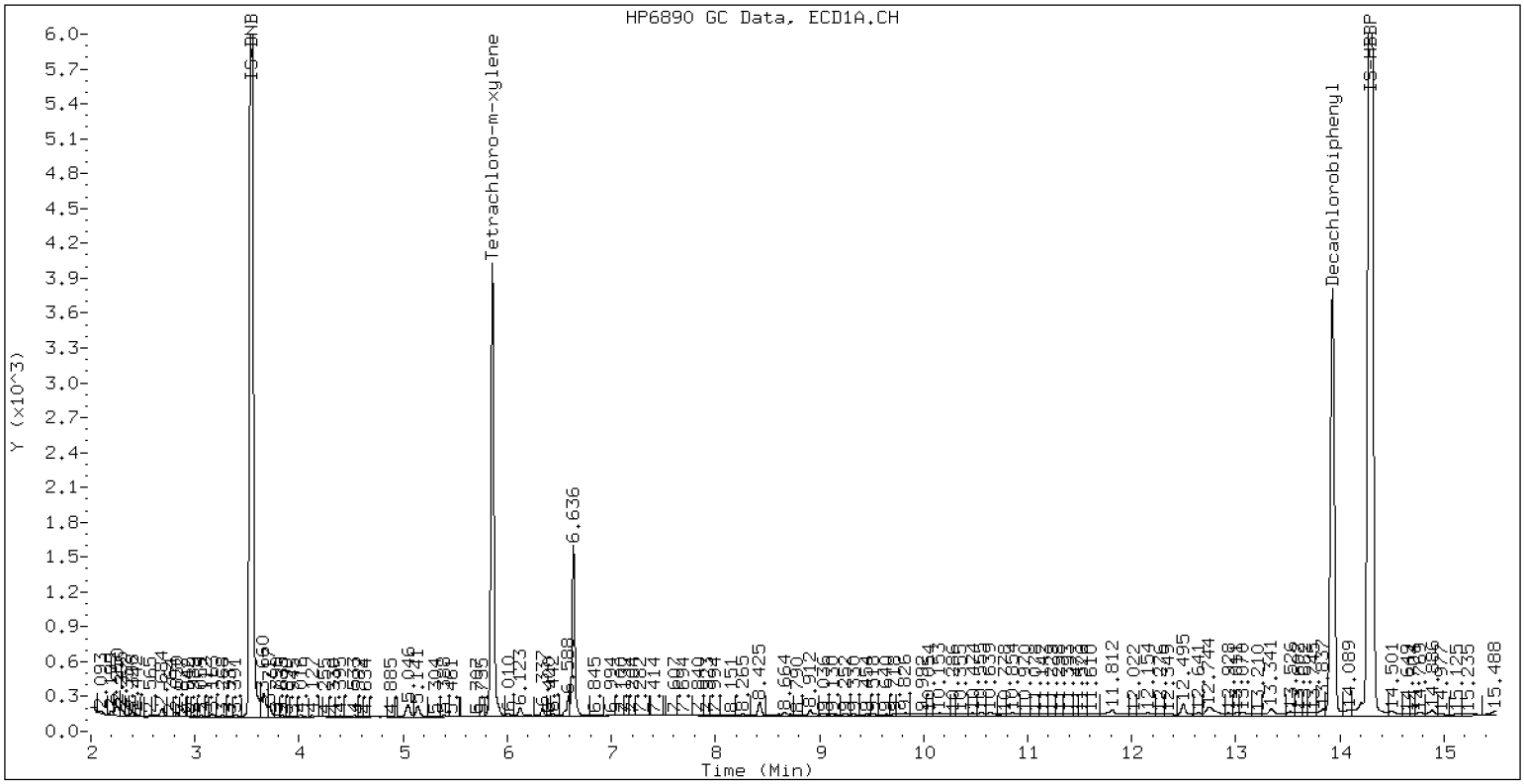
Total PCB Area Col2 (5.956 - 13.832) = 306591 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

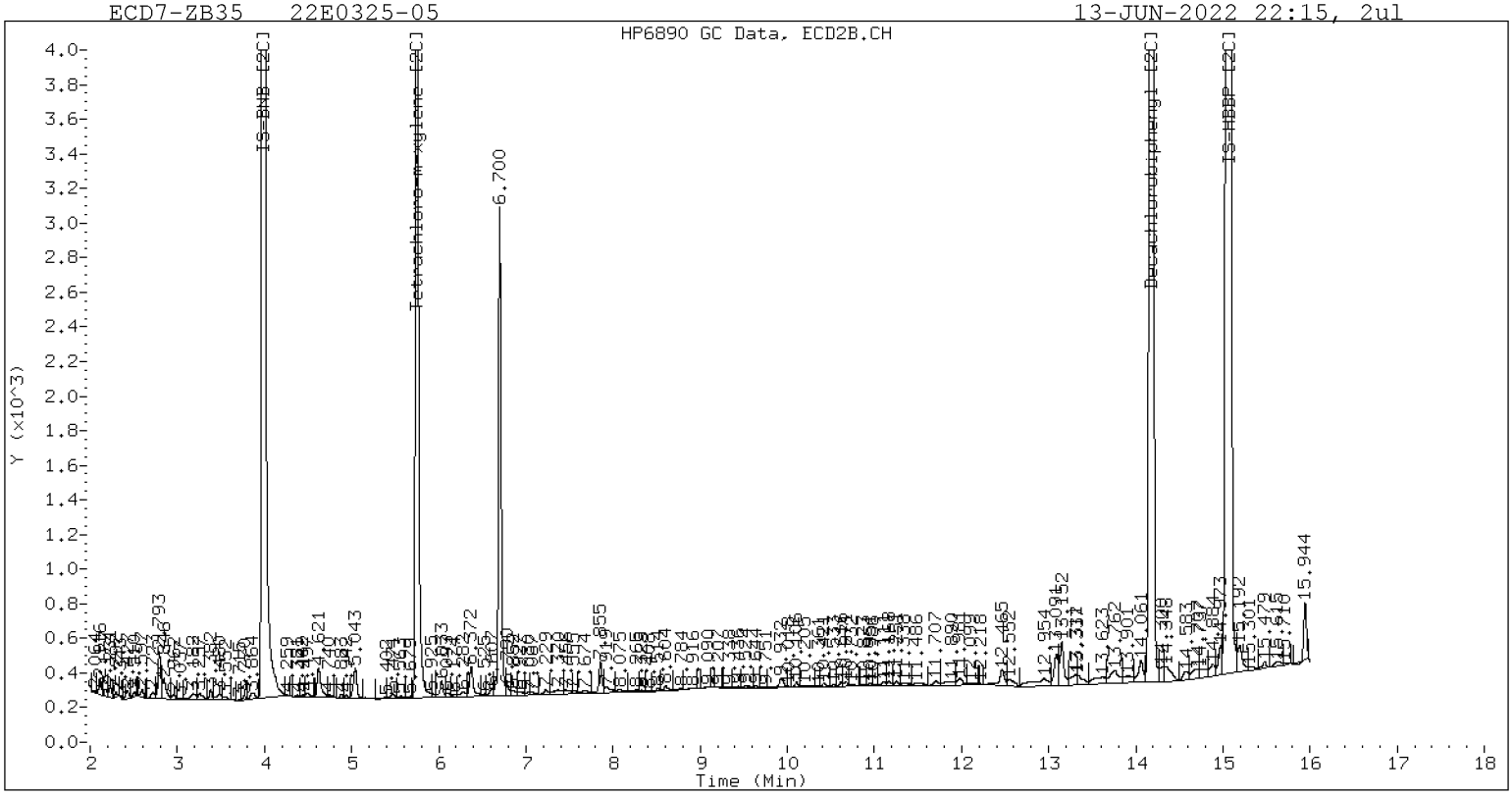
PCB Dual Column Chromatograms

ECD7-ZB5 22E0325-05 13-JUN-2022 22:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 22E0325-05 13-JUN-2022 22:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 22E0325
Client: HydroGeoLogic, Inc.
Project: Portland Harbor Superfund Site 2021-2022
Batch: BKE0708 Batch Matrix: Water
Preparation: EPA 3510C SepF

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SIB-SW-WR198-050522	22E0325-01	06132214ECD7.D	06/06/22 14:33	
SIB-SW-WR186-050522	22E0325-02	06132215ECD7.D	06/06/22 14:33	
SIB-SW-WR15-050522	22E0325-03	06132216ECD7.D	06/06/22 14:33	
SIB-SW-WR428-050522	22E0325-04	06132217ECD7.D	06/06/22 14:33	
SIB-SW-WR71-050522	22E0325-05	06132218ECD7.D	06/06/22 14:33	
Blank	BKE0708-BLK1	06132211ECD7.D	06/06/22 14:33	
LCS	BKE0708-BS1	06132212ECD7.D	06/06/22 14:33	
LCS Dup	BKE0708-BSD1	06132213ECD7.D	06/06/22 14:33	

NO ARCHIVE VOLUME! CAREFUL!

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BKE0708

Prepared using: EPA 3510C SepF

8082A PCB Water 0.01 in Water

Matrix: Water **Date Prepared:** 06/06/22 **Balance ID:** N/A **Set Up By:** CTO 5/26/22

WO Comments
22E0325: Included MS/MSD or MS/MD at N/C. Includes Level 4 package and EQUIS EDD.

Analysis: 8082A PCB Water 0.01

Lab Number & Container	Initial (mL) (Target) Actual	(REQ) Acid C/U (1:1)	(REQ) Sulfur C/U (1:1) Transfer Rinse	(REQ) Silica Gel C/U (1:1) Transfer Rinse	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
22E0325-01 A	(1,000.00) 1000	4mL	4mL	1mL	0.5	0.5	
22E0325-02 A	(1,000.00)	4mL	4mL	1mL	0.5	0.5	
22E0325-03 A	(1,000.00)	4mL	4mL	1mL	0.5	0.5	
22E0325-04 A	(1,000.00)	4mL	4mL	1mL	0.5	0.5	
22E0325-05 A	(1,000.00)	4mL	4mL	1mL	0.5	0.5	

Batch QC

Lab Number	Initial (mL) (Target) Actual	(REQ) Acid C/U (1:1)	(REQ) Sulfur C/U (1:1) Transfer Rinse	(REQ) Silica Gel C/U (1:1) Transfer Rinse	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BKE0708-BLK1	(1,000.00) 1000	4mL	4mL	1mL	0.5	0.5	
BKE0708-BS1	(1,000.00)	4mL	4mL	1mL	0.5	0.5	
BKE0708-BSD1	(1,000.00)	4mL	4mL	1mL	0.5	0.5	

SH — Client ID verified By
06/06/22 — Date
CG 06/1/22 — Preparation Reviewed By
Date
1433 — Extraction Date and Time

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BKE0708

Prepared using: EPA 3510C SepF

8082A PCB Water 0.01 in Water

WO Comments
22E0325: Included MS/MSD or MS/MD at N/C. Includes Level 4 package and EQUIS EDD.

Prep Steps

Verify pH is 5-9
Y / N
SH 06/06/22
Analyst/Date

KD 100°C
1 2 3 4 5 6
MRB/SB 06/10/22
Analyst/Date

TurboVap Pre Cleanups
1 2 3 4 5
CG 061122
Analyst/Date

TurboVap Post Cleanups
1 2 3 4 5
CG 061122
Analyst/Date

Vialing
CG 061122
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Separatory Funnel Analyst: SH Date: 06/06/22	
Hexane	K004447
Anhydrous Sodium Sulfate	K004927
KD Analyst: MRB/SB Date: 06/10/22	
Hexane	K004447
Vialing Analyst: CG Date: 061122	
Hexane	K004447
Concentrated Sulfuric Acid	K003743
Tetrabutylammonium hydrogensulfate (TBAS)	K004980
Sodium Sulfite	J012085
Silica Gel (SPE) Darts	K001690

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 0.2µg/mL	D K004576 Exp: 11/12/2022	100µL	SH	CG
Spike/LCS Only NOT for MDL 0.2µg/mL	QLS 23 K003795 Exp: 10/20/2022	250µL	SH	CG
~~**QLS Spike** 0.2µg/mL~~	~~QLS 23 K003795 Exp: 10/20/2022~~	~~50µL~~		

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BKE0708

Prepared using: EPA 3510C SepF

8082A PCB Water 0.01 in Water

WO Comments

22E0325: Included MS/MSD or MS/MD at N/C. Includes Level 4 package and EQUIS EDD.

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Rinse all Non-scratched glassware with HEXANE ONLY! (NO DCM!) 2. Verify pH is 5-9. 3. Adjust pH (if necessary=Analyst Notes). 4. Add Surr/Spike. 5. Add 60 mL Hexane to 1.0L sample bottle and perform a bottle rinse. 6. Extract 3X with 60mL Hexane. 7. Non-scratched KD (NO Drying Column) at 100°. RINSE SNYDER COLUMNS WITH HEXANE ONLY! 8. TurboVap. 9. Clean-ups=Transfer Rinse. 10. TurboVap. 11. Vial with Hexane. 12. Rinse syringe 3X w/ DCM followed by 3X w/ Hexane. Archive: Y [N]	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: LL PCB Extraction Batch BKE0708

Total Solids Batch: MA Work Order(s): 22E0325

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☒ Turbid/Color= 325 -#1, #2, #3 slight yellow turbid / 325 -#4 yellow turbid	SH #6/#6/22
☒ Particulates(%)=(Note: >5%=Notify Supervisor/Lead) 325 -#1 3%.	SH #6/#6/22
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-20
Cleanup Batch:	CKF0089	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SIB-SW-WR428-050522	22E0325-04	06132217ECD7.D	06/11/2022	
SIB-SW-WR186-050522	22E0325-02	06132215ECD7.D	06/11/2022	
SIB-SW-WR198-050522	22E0325-01	06132214ECD7.D	06/11/2022	
LCS Dup	BKE0708-BSD1	06132213ECD7.D	06/11/2022	
Blank	BKE0708-BLK1	06132211ECD7.D	06/11/2022	
SIB-SW-WR71-050522	22E0325-05	06132218ECD7.D	06/11/2022	
SIB-SW-WR15-050522	22E0325-03	06132216ECD7.D	06/11/2022	
LCS	BKE0708-BS1	06132212ECD7.D	06/11/2022	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CKF0089

Matrix: Water **Cleanup using: Organics - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 6/11/2022 8:43:42PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
22E0325-01	A	SIB-SW-WR198-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-02	A	SIB-SW-WR186-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-03	A	SIB-SW-WR15-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-04	A	SIB-SW-WR428-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-05	A	SIB-SW-WR71-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
BKE0708-BLK1	-	Blank	-	0.5	0.5	-	6/11/2022	CCT	
BKE0708-BS1	-	LCS	-	0.5	0.5	-	6/11/2022	CCT	
BKE0708-BSD1	-	LCS Dup	-	0.5	0.5	-	6/11/2022	CCT	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-20
Cleanup Batch:	CKF0090	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3660C Silica Gel Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SIB-SW-WR428-050522	22E0325-04	06132217ECD7.D	06/11/2022	
SIB-SW-WR71-050522	22E0325-05	06132218ECD7.D	06/11/2022	
SIB-SW-WR186-050522	22E0325-02	06132215ECD7.D	06/11/2022	
SIB-SW-WR15-050522	22E0325-03	06132216ECD7.D	06/11/2022	
SIB-SW-WR198-050522	22E0325-01	06132214ECD7.D	06/11/2022	
LCS Dup	BKE0708-BSD1	06132213ECD7.D	06/11/2022	
LCS	BKE0708-BS1	06132212ECD7.D	06/11/2022	
Blank	BKE0708-BLK1	06132211ECD7.D	06/11/2022	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CKF0090

Matrix: Water **Cleanup using: Organics - EPA 3660C Silica Gel Cleanup - uL** **Printed: 6/11/2022 8:44:11PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
22E0325-01	A	SIB-SW-WR198-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-02	A	SIB-SW-WR186-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-03	A	SIB-SW-WR15-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-04	A	SIB-SW-WR428-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-05	A	SIB-SW-WR71-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
BKE0708-BLK1	-	Blank	-	0.5	0.5	-	6/11/2022	CCT	
BKE0708-BS1	-	LCS	-	0.5	0.5	-	6/11/2022	CCT	
BKE0708-BSD1	-	LCS Dup	-	0.5	0.5	-	6/11/2022	CCT	

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CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-20
Cleanup Batch:	CKF0091	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SIB-SW-WR15-050522	22E0325-03	06132216ECD7.D	06/11/2022	
LCS	BKE0708-BS1	06132212ECD7.D	06/11/2022	
Blank	BKE0708-BLK1	06132211ECD7.D	06/11/2022	
SIB-SW-WR71-050522	22E0325-05	06132218ECD7.D	06/11/2022	
SIB-SW-WR428-050522	22E0325-04	06132217ECD7.D	06/11/2022	
LCS Dup	BKE0708-BSD1	06132213ECD7.D	06/11/2022	
SIB-SW-WR186-050522	22E0325-02	06132215ECD7.D	06/11/2022	
SIB-SW-WR198-050522	22E0325-01	06132214ECD7.D	06/11/2022	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CKF0091

Matrix: Water **Cleanup using: Organics - EPA 3660B Sulfur Cleanup - uL** **Printed: 6/11/2022 8:44:45PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
22E0325-01	A	SIB-SW-WR198-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-02	A	SIB-SW-WR186-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-03	A	SIB-SW-WR15-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-04	A	SIB-SW-WR428-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
22E0325-05	A	SIB-SW-WR71-050522	A 01	0.5	0.5	8082A PCB Water 0.01	6/11/2022	CCT	
BKE0708-BLK1	-	Blank	-	0.5	0.5	-	6/11/2022	CCT	
BKE0708-BS1	-	LCS	-	0.5	0.5	-	6/11/2022	CCT	
BKE0708-BSD1	-	LCS Dup	-	0.5	0.5	-	6/11/2022	CCT	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I

METHOD BLANK DATA SHEET

EPA 8082A

Blank

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.			Project:	Portland Harbor Superfund Site 2(
Matrix:	Water	Laboratory ID:	BKE0708-BLK1	File ID:	06132211ECD7.D
Sampled:	N/A	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 19:47
Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	1000 mL / 0.5 mL
Batch:	BKE0708	Sequence:	SKF0183	Calibration:	FD00045
Instrument:	ECD7	Column:	ZB5	Cleanups:	Silica Gel, Sulfur, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
12674-11-2	Aroclor 1016	1	0.002	U	0.002	0.010
11104-28-2	Aroclor 1221	1	0.002	U	0.002	0.010
11141-16-5	Aroclor 1232	1	0.002	U	0.002	0.010
53469-21-9	Aroclor 1242	1	0.002	U	0.002	0.010
12672-29-6	Aroclor 1248	1	0.002	U	0.002	0.010
11097-69-1	Aroclor 1254	1	0.002	U	0.002	0.010
11096-82-5	Aroclor 1260	1	0.003	U	0.003	0.010
37324-23-5	Aroclor 1262	1	0.003	U	0.003	0.010
11100-14-4	Aroclor 1268	1	0.003	U	0.003	0.010

SURROGATES	ADDED (ug/L)	CONC. (ug/L)	% REC	QC LIMITS	Q
Decachlorobiphenyl	0.020000	0.0155	77.7	29 - 120	
Tetrachlorometaxylene	0.020000	0.0127	63.3	32 - 120	
Decachlorobiphenyl [2C]	0.020000	0.0169	84.6	29 - 120	
Tetrachlorometaxylene [2C]	0.020000	0.0116	58.0	32 - 120	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132211ECD7.D
Data file 2: /220613.b/220613.b/06132211ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BKE0708-BLK1
Client ID:
Injection Date: 13-JUN-2022 19:47
Report Date: 06/15/2022 10:36
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.858	0.002	138570	5.750	0.002	258071	25.3	23.2	8.7	Tetrachloro-m-xylene
13.931	-0.001	227189	14.183	-0.004	1091527	31.1	33.9	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	407783	-16.1
Hexabromobiphenyl	571136	705430	23.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	872389	-4.7
Hexabromobiphenyl	1789656	2203205	23.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.956 - 13.832) = 211547 Col1 Total PCB = 0.1 ppm*

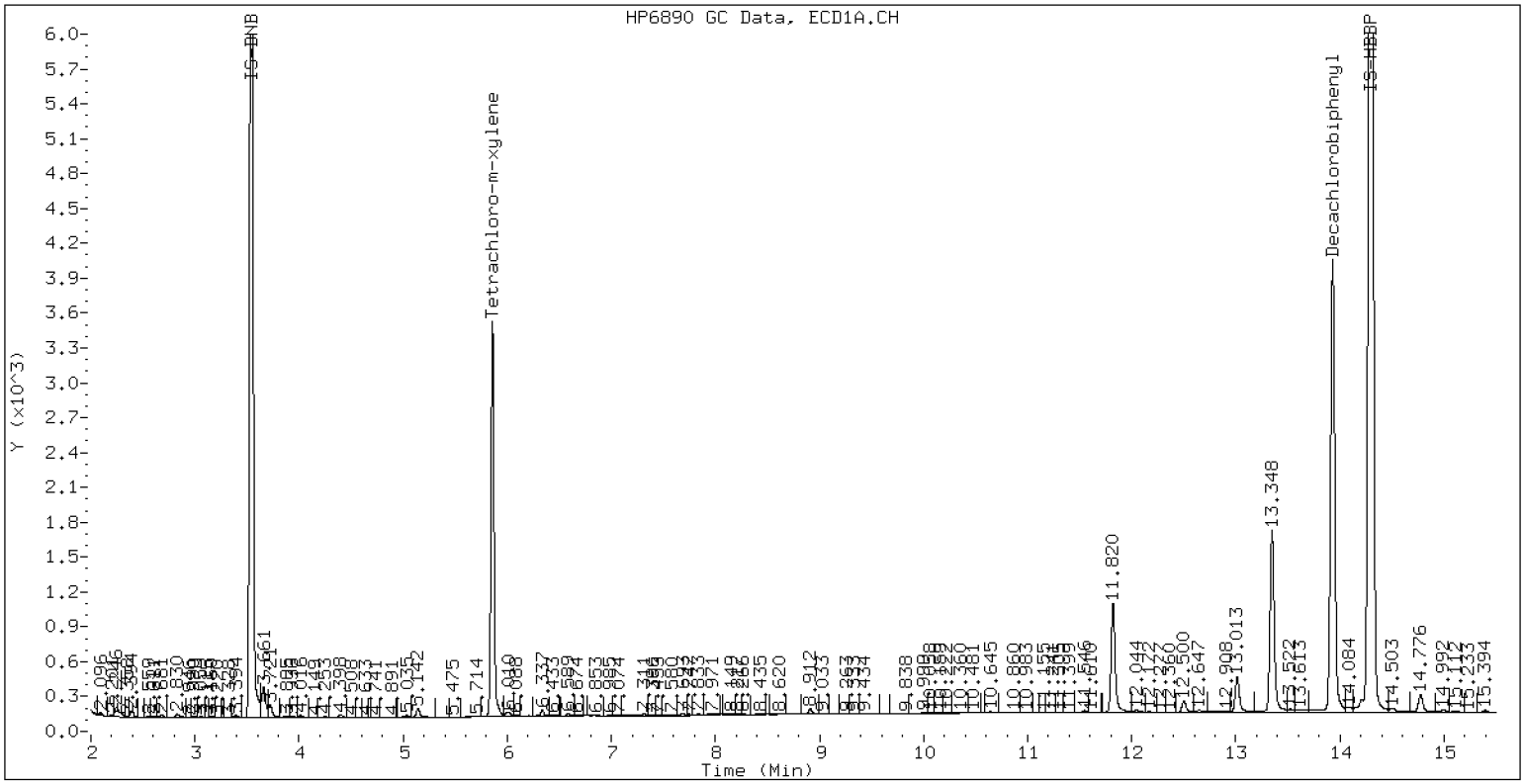
Total PCB Area Col2 (5.956 - 13.832) = 261193 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

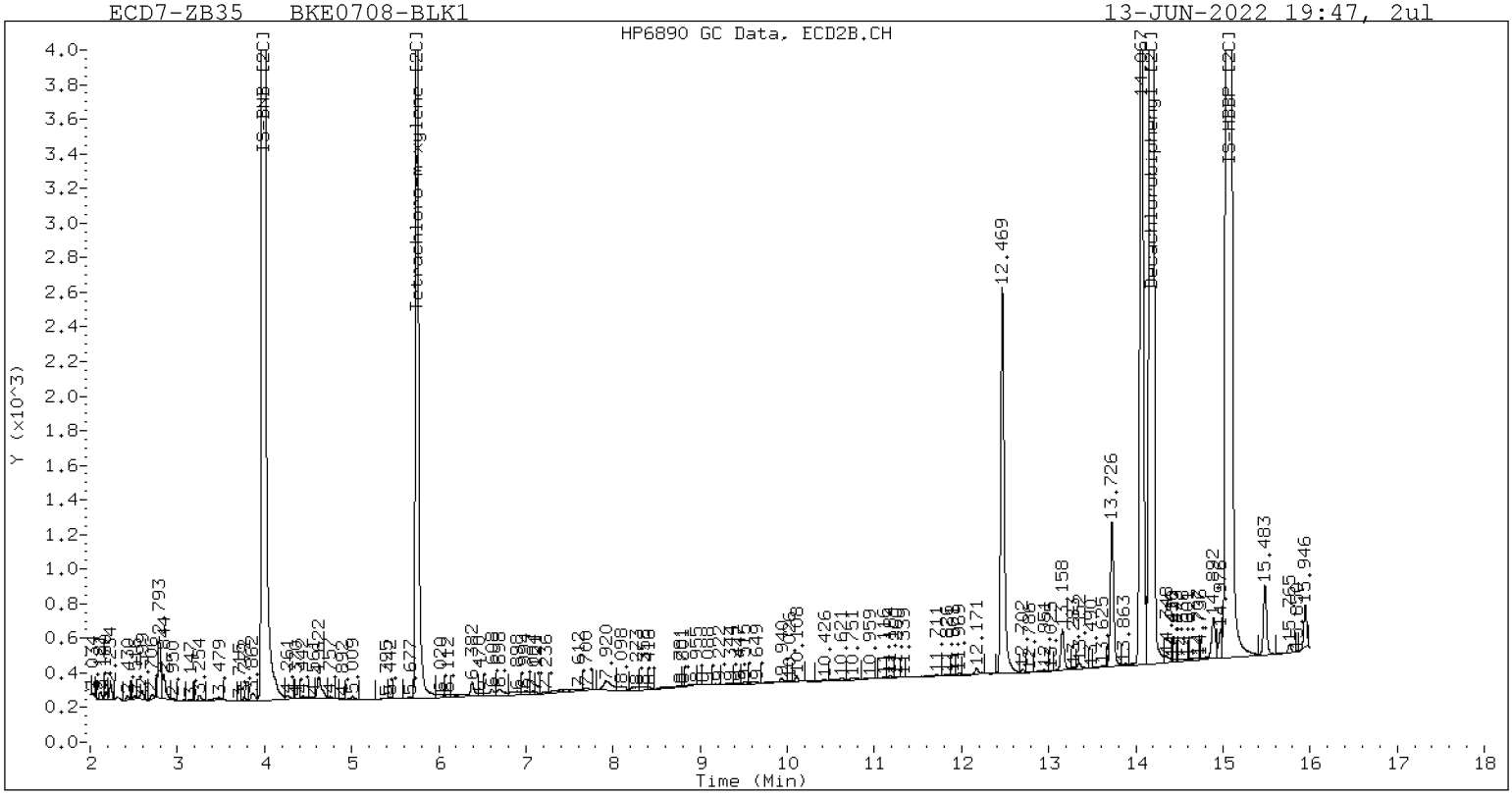
PCB Dual Column Chromatograms

ECD7-ZB5 BKE0708-BLK1 13-JUN-2022 19:47, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BKE0708-BLK1 13-JUN-2022 19:47, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Matrix:	Water	Analyzed:	06/13/22 20:08
Batch:	BKE0708	Laboratory ID:	BKE0708-BS1
Preparation:	EPA 3510C SepF	Sequence Name:	LCS
Initial/Final:	1000 mL / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Aroclor 1016	0.0500	0.042		84.3	54 - 120
Aroclor 1260 [2C]	0.0500	0.039		78.3	51 - 128

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Aroclor 1016	0.0500	0.043		85.9	1.90	30	54 - 120
Aroclor 1260	0.0500	0.040		79.8	2.05	30	51 - 128

* Indicates values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132212ECD7.D
Data file 2: /220613.b/220613.b/06132212ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BKE0708-BS1
Client ID:
Injection Date: 13-JUN-2022 20:08
Report Date: 06/15/2022 10:15
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.856	-0.005	155134	5.748	-0.001	284705	26.8	24.3	9.6	Tetrachloro-m-xylene
13.931	0.000	171515	14.183	-0.004	805341	22.0	23.4	6.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	431451	-11.2
Hexabromobiphenyl	571136	750545	31.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	917538	0.3
Hexabromobiphenyl	1789656	2352317	31.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.313	-0.002	14104	89.4	1	7.310	-0.001	40166	80.8
Aroclor-1016	2	7.688	-0.001	43627	81.0	2	7.905	-0.002	92064	81.7
Aroclor-1016	3	7.828	0.001	17413	82.9	3	8.104	-0.002	35943	82.0
Aroclor-1016	4	7.934	0.001	12090	83.9	4	8.275	-0.003	21644	83.0
Total Col1Ave (4 peaks):					84.3	Total Col2Ave (4 peaks):				81.9 RPD = 3
Corrected Ave (3 peaks):					82.6	Corrected Ave (3 peaks):				81.5 RPD = 1
Aroclor-1221	1	---			0.0	1	5.010	-0.015	1278	22.4
Aroclor-1221	2	6.176	-0.006	2037	34.3	2	6.377	0.023	6467	47.7
Aroclor-1221	3	6.426	-0.004	9568	68.3	3	6.679	0.001	16492	67.2
Col1Ave: <3 Quant Peaks						Col2Ave: 45.7				
Aroclor-1232	1	---			0.0	1	5.010	-0.019	1278	37.1
Aroclor-1232	2	6.176	-0.007	2037	51.4	2	7.310	-0.001	40166	189.0
Aroclor-1232	3	7.688	-0.002	43627	208.1	3	7.905	-0.000	92064	210.9
Aroclor-1232	4	8.614	-0.003	15099	206.3	4	8.767	-0.001	30654	250.9
Total Col1Ave (3 peaks):					155.3	Total Col2Ave (4 peaks):				172.0 RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 145.7				
Aroclor-1242	1	7.313	-0.002	14104	117.7	1	7.310	0.000	40166	104.3
Aroclor-1242	2	7.688	-0.000	43627	109.1	2	7.905	0.002	92064	107.7
Aroclor-1242	3	9.032	0.005	11760	75.5	3	9.283	0.000	3441	13.1
Aroclor-1242	4	9.258	-0.000	2096	15.9	4	9.628	-0.000	3664	11.6
Total Col1Ave (4 peaks):					79.6	Total Col2Ave (4 peaks):				59.2 RPD = 29
Corrected Ave (3 peaks):					66.9	Corrected Ave (3 peaks):				43.0 RPD = 43*
Aroclor-1248	1	8.443	-0.001	13308	67.3	1	8.361	-0.002	25906	67.0
Aroclor-1248	2	8.614	-0.000	15099	66.2	2	8.767	-0.003	30654	70.5
Aroclor-1248	3	9.032	0.005	11760	40.6	3	9.204	-0.006	5156	8.1
Aroclor-1248	4	9.258	0.000	2096	9.4	4	9.628	-0.005	3664	6.1
Total Col1Ave (4 peaks):					45.9	Total Col2Ave (4 peaks):				37.9 RPD = 19
Corrected Ave (3 peaks):					38.8	Corrected Ave (3 peaks):				27.1 RPD = 35
Aroclor-1254	1	9.333	-0.000	11928	34.8	1	9.501	-0.003	24810	40.7
Aroclor-1254	2	9.407	-0.003	282	2.4	2	9.936	0.003	3132	13.4
Aroclor-1254	3	9.701	0.001	2310	10.5	3	10.022	-0.003	5586	11.5
Aroclor-1254	4	9.836	0.001	7026	16.9	4	10.200	0.025	56566	52.5
Aroclor-1254	5	10.156	-0.024	34138	77.1	5	10.619	-0.003	101017	204.9
Total Col1Ave (5 peaks):					28.4	Total Col2Ave (5 peaks):				64.6 RPD = 78*
Corrected Ave (4 peaks):					16.2	Corrected Ave (4 peaks):				29.5 RPD = 59*
Aroclor-1260	1	11.081	0.001	25879	72.9	1	11.710	-0.001	76845	79.0
Aroclor-1260	2	11.475	0.004	15033	78.5	2	11.972	-0.001	196209	76.5
Aroclor-1260	3	11.767	0.001	66138	78.0	3	12.557	-0.002	135280	79.5
Aroclor-1260	4	12.170	0.003	36212	84.2	4	13.282	-0.003	55348	78.3
Aroclor-1260	5	12.282	0.003	14101	77.2	NS	---			----
Total Col1Ave (5 peaks):					78.2	Total Col2Ave (4 peaks):				78.3 RPD = 0
Corrected Ave (4 peaks):					76.7	Corrected Ave (3 peaks):				77.9 RPD = 2
Aroclor-1262	1	10.857	0.001	53498	164.4	1	11.256	0.002	69016	44.5
Aroclor-1262	2	12.282	0.001	14101	33.6	2	11.710	0.004	76845	58.1
Aroclor-1262	3	12.355	0.000	16494	38.3	3	12.481	-0.009	135009	88.4
Aroclor-1262	4	13.018	-0.002	26918	75.2	4	13.282	0.002	55348	40.6
Total Col1Ave (4 peaks):					77.9	Total Col2Ave (4 peaks):				57.9 RPD = 29
Corrected Ave (3 peaks):					49.0	Corrected Ave (3 peaks):				47.7 RPD = 3
Aroclor-1268	1	12.282	0.001	14101	12.3	1	12.481	-0.007	135009	33.4
Aroclor-1268	2	12.355	0.003	16494	15.6	2	12.557	0.002	135280	31.4
Aroclor-1268	3	12.760	0.023	7881	8.8	3	12.954	0.003	3338	0.9
Aroclor-1268	4	13.524	-0.001	5685	2.1	4	13.730	-0.039	45459	3.0
Total Col1Ave (4 peaks):					9.7	Total Col2Ave (4 peaks):				17.2 RPD = 56*
Corrected Ave (3 peaks):					7.7	Corrected Ave (3 peaks):				11.8 RPD = 41*

Total PCB Area Col1 (5.962 - 13.830) = 880724 Col1 Total PCB = 0.2 ppm*

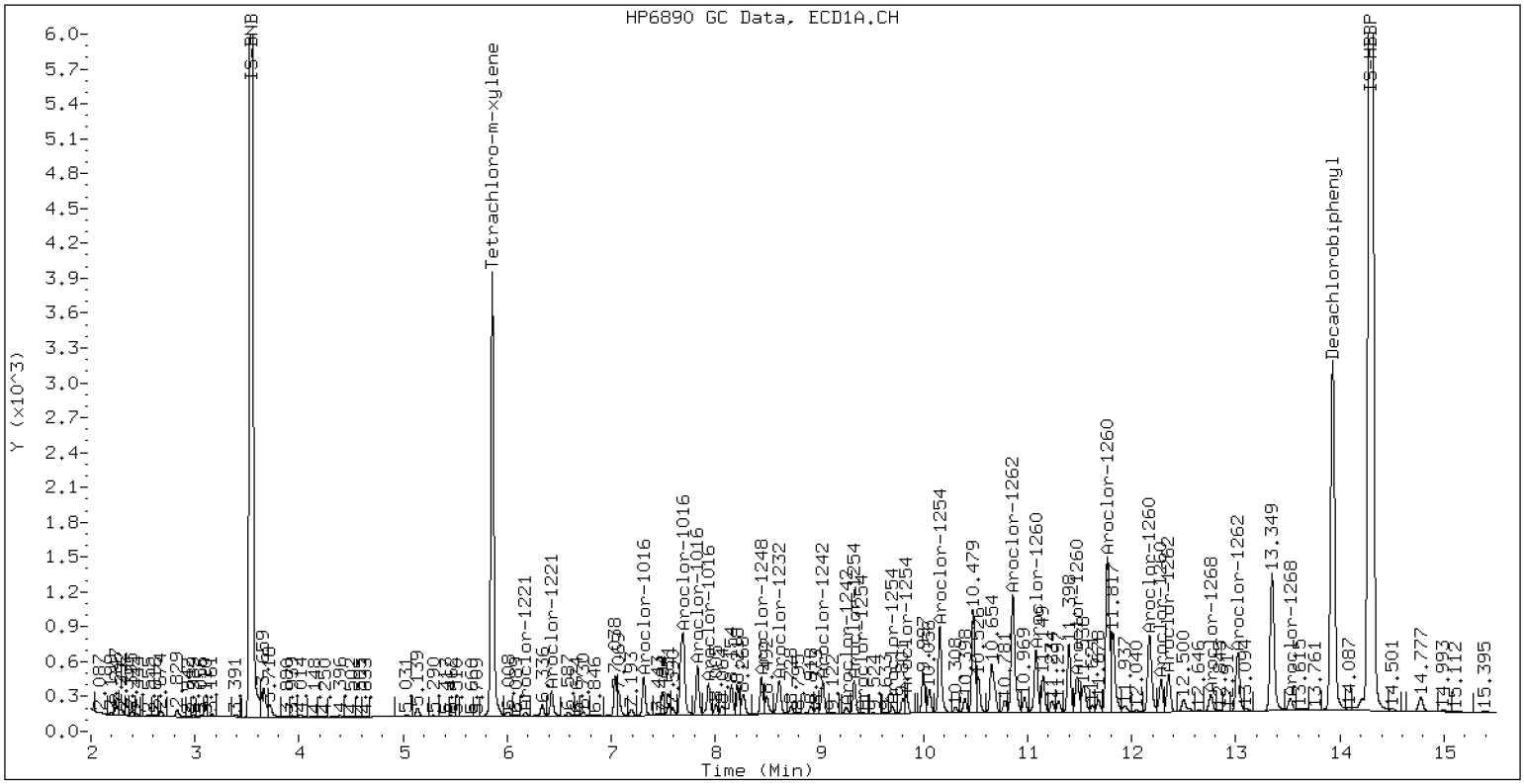
Total PCB Area Col2 (5.962 - 13.830) = 1910260 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

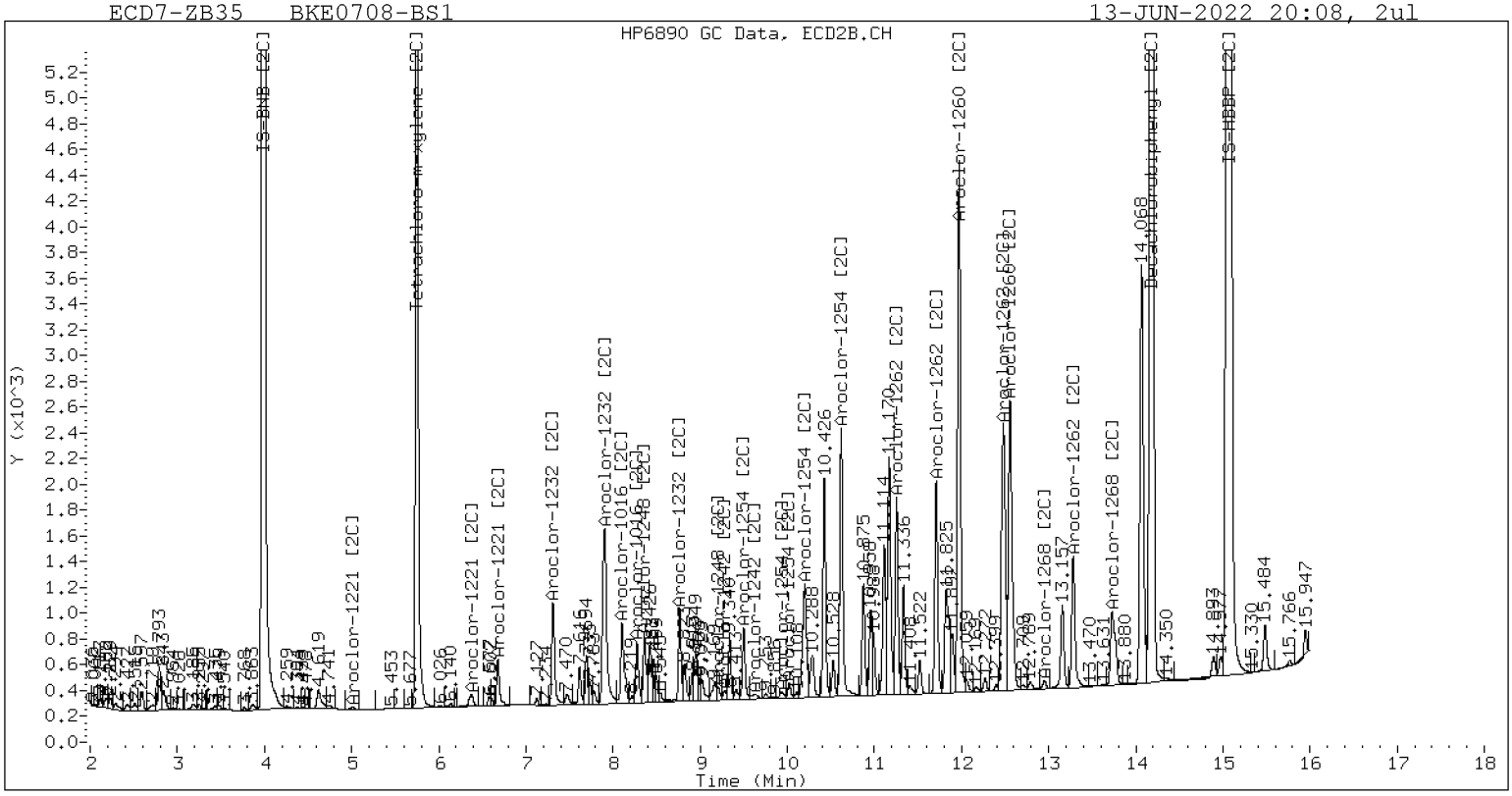
PCB Dual Column Chromatograms

ECD7-ZB5 BKE0708-BS1 13-JUN-2022 20:08, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BKE0708-BS1 13-JUN-2022 20:08, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132213ECD7.D
Data file 2: /220613.b/220613.b/06132213ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BKE0708-BSD1
Client ID:
Injection Date: 13-JUN-2022 20:29
Report Date: 06/15/2022 10:15
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.858	-0.004	152441	5.749	0.001	278473	26.3	23.7	10.5	Tetrachloro-m-xylene
13.930	-0.000	220078	14.183	-0.004	1109630	28.4	32.0	11.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	432099	-11.1
Hexabromobiphenyl	571136	747841	30.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	922929	0.9
Hexabromobiphenyl	1789656	2372854	32.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.313	-0.002	14328	90.7	1	7.311	-0.000	40685	81.4
Aroclor-1016	2	7.688	-0.001	44653	82.8	2	7.905	-0.002	94349	83.3
Aroclor-1016	3	7.827	0.001	17766	84.5	3	8.105	-0.001	35111	79.6
Aroclor-1016	4	7.934	0.001	12373	85.7	4	8.275	-0.003	21359	81.5
Total Col1Ave (4 peaks):					85.9	Total Col2Ave (4 peaks):				81.4 RPD = 5
Corrected Ave (3 peaks):					84.3	Corrected Ave (3 peaks):				80.8 RPD = 4
Aroclor-1221	1	4.744	-0.048	119	3.5	1	5.013	-0.012	891	15.5
Aroclor-1221	2	6.177	-0.005	1878	31.6	2	6.378	0.023	7100	52.0
Aroclor-1221	3	6.427	-0.003	9115	65.0	3	6.679	0.001	16793	68.0
Total Col1Ave (3 peaks):					33.3	Total Col2Ave (3 peaks):				45.2 RPD = 30
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.744	-0.052	119	5.8	1	5.013	-0.016	891	25.7
Aroclor-1232	2	6.177	-0.007	1878	47.3	2	7.311	-0.000	40685	190.4
Aroclor-1232	3	7.688	-0.002	44653	212.7	3	7.905	-0.000	94349	214.9
Aroclor-1232	4	8.614	-0.002	15462	211.0	4	8.767	-0.000	27648	224.9
Total Col1Ave (4 peaks):					119.2	Total Col2Ave (4 peaks):				164.0 RPD = 32
Corrected Ave (3 peaks):					88.0	Corrected Ave (3 peaks):				143.7 RPD = 48*
Aroclor-1242	1	7.313	-0.002	14328	119.4	1	7.311	0.001	40685	105.0
Aroclor-1242	2	7.688	-0.000	44653	111.5	2	7.905	0.002	94349	109.8
Aroclor-1242	3	9.032	0.006	12002	77.0	3	9.284	0.001	2821	10.7
Aroclor-1242	4	9.259	0.000	2151	16.3	4	9.632	0.004	4249	13.4
Total Col1Ave (4 peaks):					81.0	Total Col2Ave (4 peaks):				59.7 RPD = 30
Corrected Ave (3 peaks):					68.3	Corrected Ave (3 peaks):				43.0 RPD = 45*
Aroclor-1248	1	8.443	-0.001	13571	68.5	1	8.360	-0.003	26114	67.1
Aroclor-1248	2	8.614	0.000	15462	67.7	2	8.767	-0.003	27648	63.3
Aroclor-1248	3	9.032	0.005	12002	41.4	3	9.205	-0.005	4403	6.9
Aroclor-1248	4	9.259	0.000	2151	9.7	4	9.632	-0.001	4249	7.0
Total Col1Ave (4 peaks):					46.8	Total Col2Ave (4 peaks):				36.1 RPD = 26
Corrected Ave (3 peaks):					39.6	Corrected Ave (3 peaks):				25.7 RPD = 42*
Aroclor-1254	1	9.334	0.000	12087	35.2	1	9.502	-0.001	24804	40.5
Aroclor-1254	2	9.406	-0.003	375	3.2	2	9.934	0.001	2396	10.2
Aroclor-1254	3	9.701	0.001	2394	10.9	3	10.023	-0.002	5127	10.5
Aroclor-1254	4	9.836	0.000	7422	17.9	4	10.200	0.024	56548	52.2
Aroclor-1254	5	10.157	-0.023	34896	78.7	5	10.620	-0.002	101198	204.1
Total Col1Ave (5 peaks):					29.2	Total Col2Ave (5 peaks):				63.5 RPD = 74*
Corrected Ave (4 peaks):					16.8	Corrected Ave (4 peaks):				28.3 RPD = 51*
Aroclor-1260	1	11.080	0.001	26496	74.9	1	11.710	-0.002	78000	79.4
Aroclor-1260	2	11.474	0.003	15349	80.4	2	11.973	-0.001	201618	77.9
Aroclor-1260	3	11.768	0.002	65807	77.9	3	12.557	-0.002	140599	81.9
Aroclor-1260	4	12.170	0.002	37326	87.1	4	13.283	-0.002	55840	78.3
Aroclor-1260	5	12.280	0.002	14298	78.6	NS	---			----
Total Col1Ave (5 peaks):					79.8	Total Col2Ave (4 peaks):				79.4 RPD = 0
Corrected Ave (4 peaks):					78.0	Corrected Ave (3 peaks):				78.6 RPD = 1
Aroclor-1262	1	10.857	0.002	54384	167.7	1	11.256	0.002	70262	44.9
Aroclor-1262	2	12.280	-0.001	14298	34.2	2	11.710	0.003	78000	58.5
Aroclor-1262	3	12.354	0.000	16654	38.8	3	12.475	-0.015	186782	121.3
Aroclor-1262	4	13.017	-0.003	34494	96.7	4	13.283	0.003	55840	40.6
Total Col1Ave (4 peaks):					84.4	Total Col2Ave (4 peaks):				66.3 RPD = 24
Corrected Ave (3 peaks):					56.6	Corrected Ave (3 peaks):				48.0 RPD = 16
Aroclor-1268	1	12.280	-0.001	14298	12.5	1	12.475	-0.014	186782	45.9
Aroclor-1268	2	12.354	0.002	16654	15.9	2	12.557	0.002	140599	32.4
Aroclor-1268	3	12.760	0.022	7908	8.8	3	12.952	0.001	3230	0.8
Aroclor-1268	4	13.524	-0.001	5879	2.2	4	13.729	-0.041	61931	4.1
Total Col1Ave (4 peaks):					9.9	Total Col2Ave (4 peaks):				20.8 RPD = 71*

Corrected Ave (3 peaks): 7.9 Corrected Ave (3 peaks): 12.4 RPD = 45*

Total PCB Area Col1 (5.962 - 13.830) = 942580 Col1 Total PCB = 0.3 ppm*

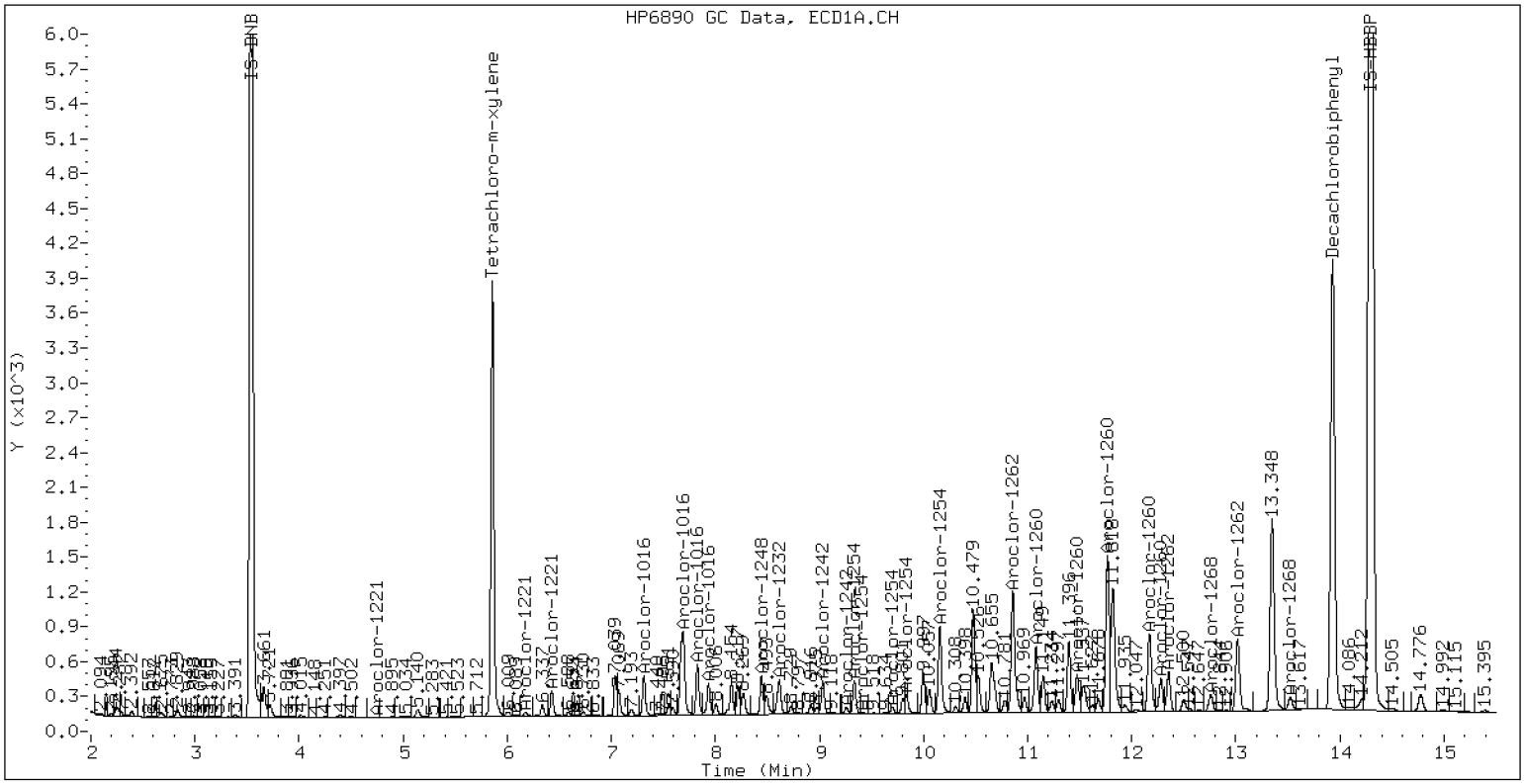
Total PCB Area Col2 (5.962 - 13.830) = 1985243 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

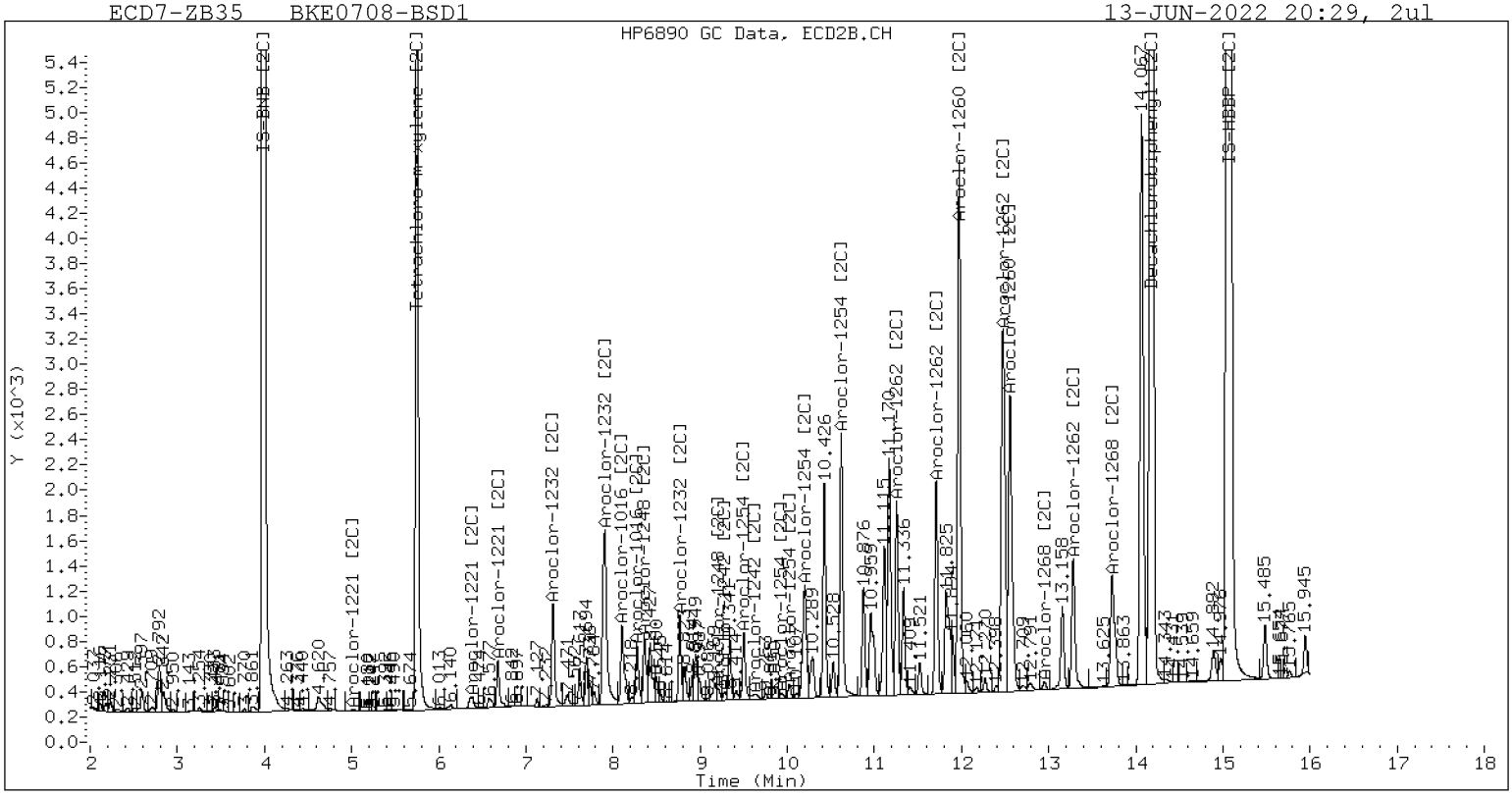
PCB Dual Column Chromatograms

ECD7-ZB5 BKE0708-BSD1 13-JUN-2022 20:29, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BKE0708-BSD1 13-JUN-2022 20:29, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (1):	ZB5

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016	250	4.790401E-02	20	5.279019E-02	50	5.065961E-02	1000	4.474396E-02	100	4.897216E-02	500	4.705699E-02
Aroclor-1016 (1)	250	2.874468E-02	20	3.202453E-02	50	3.084063E-02	1000	2.626216E-02	100	2.968387E-02	500	2.791206E-02
Aroclor-1016 (2)	250	9.839325E-02	20	0.1086103	50	0.103457	1000	9.172778E-02	100	0.1002146	500	9.668958E-02
Aroclor-1016 (3)	250	3.812142E-02	20	4.277843E-02	50	4.085002E-02	1000	3.534123E-02	100	3.922073E-02	500	3.730065E-02
Aroclor-1016 (4)	250	0.0263567	20	2.774751E-02	50	2.749085E-02	1000	2.564465E-02	100	2.676947E-02	500	0.0263256
Aroclor 1260	250	4.172109E-02	20	4.714187E-02	50	4.109685E-02	1000	4.007727E-02	100	4.561585E-02	500	4.106903E-02
Aroclor-1260 (1)	250	3.706578E-02	20	4.194499E-02	50	3.849245E-02	1000	3.532862E-02	100	3.784935E-02	500	3.623638E-02
Aroclor-1260 (2)	250	1.999496E-02	20	2.251382E-02	50	0.0210115	1000	1.892538E-02	100	0.0205973	500	1.948897E-02
Aroclor-1260 (3)	250	8.711957E-02	20	0.1006195	50	7.998614E-02	1000	8.400143E-02	100	0.1045133	500	8.614315E-02
Aroclor-1260 (4)	250	4.514736E-02	20	4.939187E-02	50	4.629347E-02	1000	4.387487E-02	100	4.557641E-02	500	4.472007E-02
Aroclor-1260 (5)	250	1.927779E-02	20	0.0212392	50	1.970071E-02	1000	1.825602E-02	100	1.954292E-02	500	1.875658E-02
Decachlorobiphenyl	40	0.7963147	3.2	0.9465331	8	0.8937231	160	0.7541835	16	0.8179627	80	0.7678482
Tetrachlorometaxylene	40	1.065026	3.2	1.147099	8	1.056775	160	1.050704	16	1.051762	80	1.070944

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221							250	0.0144528				
Aroclor-1221 (1)							250	6.370231E-03				
Aroclor-1221 (2)							250	1.101895E-02				
Aroclor-1221 (3)							250	2.596923E-02				
Aroclor 1232									250	1.589327E-02		
Aroclor-1232 (1)									250	3.782806E-03		
Aroclor-1232 (2)									250	7.351244E-03		
Aroclor-1232 (3)									250	3.887114E-02		
Aroclor-1232 (4)									250	1.356791E-02		
Aroclor 1242	250	3.740579E-02										
Aroclor-1242 (1)	250	0.0222181										
Aroclor-1242 (2)	250	7.413194E-02										
Aroclor-1242 (3)	250	2.887321E-02										
Aroclor-1242 (4)	250	0.0243999										
Aroclor 1248			250	4.347014E-02								
Aroclor-1248 (1)			250	3.669238E-02								
Aroclor-1248 (2)			250	4.226868E-02								
Aroclor-1248 (3)			250	5.372484E-02								
Aroclor-1248 (4)			250	4.119468E-02								
Aroclor 1254					250	5.705703E-02						
Aroclor-1254 (1)					250	0.0635633						
Aroclor-1254 (2)					250	2.199168E-02						
Aroclor-1254 (3)					250	4.079394E-02						
Aroclor-1254 (4)					250	7.687756E-02						
Aroclor-1254 (5)					250	8.205865E-02						
Aroclor 1262							250	4.086518E-02				
Aroclor-1262 (1)							250	3.468341E-02				
Aroclor-1262 (2)							250	0.0447307				

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3)							250	4.590193E-02				
Aroclor-1262 (4)							250	3.814466E-02				
Aroclor 1268									250	0.1539621		
Aroclor-1268 (1)									250	0.1221052		
Aroclor-1268 (2)									250	0.1123632		
Aroclor-1268 (3)									250	0.0956635		
Aroclor-1268 (4)									250	0.2857166		

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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016	4.868782E-02	5.8			RSD (20)	
Aroclor-1016 (1)	2.924465E-02	7.1			RSD (20)	
Aroclor-1016 (2)	9.984875E-02	5.8			RSD (20)	
Aroclor-1016 (3)	3.893541E-02	6.8			RSD (20)	
Aroclor-1016 (4)	2.672246E-02	2.9			RSD (20)	
Aroclor 1221		0.0			RSD (20)	
Aroclor-1221 (1)		0.0			RSD (20)	
Aroclor-1221 (2)		0.0			RSD (20)	
Aroclor-1221 (3)		0.0			RSD (20)	
Aroclor 1232		0.0			RSD (20)	
Aroclor-1232 (1)		0.0			RSD (20)	
Aroclor-1232 (2)		0.0			RSD (20)	
Aroclor-1232 (3)		0.0			RSD (20)	
Aroclor-1232 (4)		0.0			RSD (20)	
Aroclor 1242		0.0			RSD (20)	
Aroclor-1242 (1)		0.0			RSD (20)	
Aroclor-1242 (2)		0.0			RSD (20)	
Aroclor-1242 (3)		0.0			RSD (20)	
Aroclor-1242 (4)		0.0			RSD (20)	
Aroclor 1248		0.0			RSD (20)	
Aroclor-1248 (1)		0.0			RSD (20)	
Aroclor-1248 (2)		0.0			RSD (20)	
Aroclor-1248 (3)		0.0			RSD (20)	
Aroclor-1248 (4)		0.0			RSD (20)	
Aroclor 1254		0.0			RSD (20)	
Aroclor-1254 (1)		0.0			RSD (20)	
Aroclor-1254 (2)		0.0			RSD (20)	
Aroclor-1254 (3)		0.0			RSD (20)	
Aroclor-1254 (4)		0.0			RSD (20)	
Aroclor-1254 (5)		0.0			RSD (20)	
Aroclor 1260	4.278699E-02	6.7			RSD (20)	

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INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1)	0.0378196	6.1			RSD (20)	
Aroclor-1260 (2)	2.042199E-02	6.2			RSD (20)	
Aroclor-1260 (3)	9.039718E-02	10.9			RSD (20)	
Aroclor-1260 (4)	4.583401E-02	4.2			RSD (20)	
Aroclor-1260 (5)	0.0194622	5.2			RSD (20)	
Aroclor 1262		0.0			RSD (20)	
Aroclor-1262 (1)		0.0			RSD (20)	
Aroclor-1262 (2)		0.0			RSD (20)	
Aroclor-1262 (3)		0.0			RSD (20)	
Aroclor-1262 (4)		0.0			RSD (20)	
Aroclor 1268		0.0			RSD (20)	
Aroclor-1268 (1)		0.0			RSD (20)	
Aroclor-1268 (2)		0.0			RSD (20)	
Aroclor-1268 (3)		0.0			RSD (20)	
Aroclor-1268 (4)		0.0			RSD (20)	
Decachlorobiphenyl	0.8294275	9.1			RSD (20)	
Tetrachlorometaxylene	1.073718	3.4			RSD (20)	

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (2):	ZB35

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016 [2C]	250	0.0515877	20	5.005708E-02	50	0.0495806	1000	5.046074E-02	100	5.074322E-02	500	5.131804E-02
Aroclor-1016 (1) [2C]	250	4.390357E-02	20	4.546053E-02	50	4.406566E-02	1000	3.947161E-02	100	4.439803E-02	500	4.261817E-02
Aroclor-1016 (2) [2C]	250	0.1000611	20	9.638081E-02	50	9.580382E-02	1000	9.909555E-02	100	9.860338E-02	500	9.934455E-02
Aroclor-1016 (3) [2C]	250	3.890189E-02	20	3.784277E-02	50	3.731962E-02	1000	0.0384929	100	3.794176E-02	500	3.891314E-02
Aroclor-1016 (4) [2C]	250	2.348418E-02	20	2.054421E-02	50	0.0211333	1000	2.478291E-02	100	0.0220297	500	2.439632E-02
Aroclor 1260 [2C]	250	5.037613E-02	20	4.652641E-02	50	4.720568E-02	1000	5.777645E-02	100	0.0486472	500	5.282612E-02
Aroclor-1260 (1) [2C]	250	3.326011E-02	20	3.239071E-02	50	0.0310965	1000	3.544322E-02	100	3.216835E-02	500	3.423951E-02
Aroclor-1260 (2) [2C]	250	8.619632E-02	20	7.981263E-02	50	7.969807E-02	1000	0.1025111	100	8.366918E-02	500	0.09141
Aroclor-1260 (3) [2C]	250	5.728475E-02	20	5.296299E-02	50	5.774103E-02	1000	6.472854E-02	100	5.506623E-02	500	5.949921E-02
Aroclor-1260 (4) [2C]	250	2.476328E-02	20	2.093932E-02	50	0.0202871	1000	2.842296E-02	100	2.368503E-02	500	2.615574E-02
Decachlorobiphenyl [2C]	40	1.292593	3.2	0.9383584	8	1.036856			16	1.107479	80	1.478676
Tetrachlorometaxylene [2C]	40	1.007511	3.2	1.00617	8	0.9608889	160	1.118681	16	0.9847166	80	1.041483

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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221 [2C]							250	1.273906E-02				
Aroclor-1221 (1) [2C]							250	4.976617E-03				
Aroclor-1221 (2) [2C]							250	0.0118306				
Aroclor-1221 (3) [2C]							250	2.140998E-02				
Aroclor 1232 [2C]									250	0.0175589		
Aroclor-1232 (1) [2C]									250	2.99959E-03		
Aroclor-1232 (2) [2C]									250	1.852563E-02		
Aroclor-1232 (3) [2C]									250	3.805601E-02		
Aroclor-1232 (4) [2C]									250	1.065437E-02		
Aroclor 1242 [2C]	250	3.961396E-02										
Aroclor-1242 (1) [2C]	250	3.359253E-02										
Aroclor-1242 (2) [2C]	250	7.449992E-02										
Aroclor-1242 (3) [2C]	250	2.283154E-02										
Aroclor-1242 (4) [2C]	250	0.0275318										
Aroclor 1248 [2C]			250	4.483863E-02								
Aroclor-1248 (1) [2C]			250	3.371852E-02								
Aroclor-1248 (2) [2C]			250	3.788434E-02								
Aroclor-1248 (3) [2C]			250	5.532346E-02								
Aroclor-1248 (4) [2C]			250	5.242815E-02								
Aroclor 1254 [2C]					250	5.054263E-02						
Aroclor-1254 (1) [2C]					250	5.314544E-02						
Aroclor-1254 (2) [2C]					250	2.033257E-02						
Aroclor-1254 (3) [2C]					250	4.233346E-02						
Aroclor-1254 (4) [2C]					250	9.392682E-02						
Aroclor-1254 (5) [2C]					250	4.297486E-02						
Aroclor 1262 [2C]							250	4.899772E-02				
Aroclor-1262 (1) [2C]							250	5.271218E-02				
Aroclor-1262 (2) [2C]							250	4.496284E-02				

Analytical Resources, LLC
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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3) [2C]							250	5.191858E-02				
Aroclor-1262 (4) [2C]							250	4.639722E-02				
Aroclor 1268 [2C]									250	0.2300015		
Aroclor-1268 (1) [2C]									250	0.1373298		
Aroclor-1268 (2) [2C]									250	0.1463747		
Aroclor-1268 (3) [2C]									250	0.1287368		
Aroclor-1268 (4) [2C]									250	0.5075644		

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INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016 [2C]	5.062456E-02	1.5			RSD (20)	
Aroclor-1016 (1) [2C]	0.0433196	4.8			RSD (20)	
Aroclor-1016 (2) [2C]	9.821487E-02	1.8			RSD (20)	
Aroclor-1016 (3) [2C]	3.823535E-02	1.7			RSD (20)	
Aroclor-1016 (4) [2C]	2.272844E-02	7.7			RSD (20)	
Aroclor 1221 [2C]		0.0			RSD (20)	
Aroclor-1221 (1) [2C]		0.0			RSD (20)	
Aroclor-1221 (2) [2C]		0.0			RSD (20)	
Aroclor-1221 (3) [2C]		0.0			RSD (20)	
Aroclor 1232 [2C]		0.0			RSD (20)	
Aroclor-1232 (1) [2C]		0.0			RSD (20)	
Aroclor-1232 (2) [2C]		0.0			RSD (20)	
Aroclor-1232 (3) [2C]		0.0			RSD (20)	
Aroclor-1232 (4) [2C]		0.0			RSD (20)	
Aroclor 1242 [2C]		0.0			RSD (20)	
Aroclor-1242 (1) [2C]		0.0			RSD (20)	
Aroclor-1242 (2) [2C]		0.0			RSD (20)	
Aroclor-1242 (3) [2C]		0.0			RSD (20)	
Aroclor-1242 (4) [2C]		0.0			RSD (20)	
Aroclor 1248 [2C]		0.0			RSD (20)	
Aroclor-1248 (1) [2C]		0.0			RSD (20)	
Aroclor-1248 (2) [2C]		0.0			RSD (20)	
Aroclor-1248 (3) [2C]		0.0			RSD (20)	
Aroclor-1248 (4) [2C]		0.0			RSD (20)	
Aroclor 1254 [2C]		0.0			RSD (20)	
Aroclor-1254 (1) [2C]		0.0			RSD (20)	
Aroclor-1254 (2) [2C]		0.0			RSD (20)	
Aroclor-1254 (3) [2C]		0.0			RSD (20)	
Aroclor-1254 (4) [2C]		0.0			RSD (20)	
Aroclor-1254 (5) [2C]		0.0			RSD (20)	
Aroclor 1260 [2C]	5.055966E-02	8.3			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Calibration:	FD00045	Instrument:	ECD7
Calibration Date:	04/14/2022	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1) [2C]	3.309973E-02	4.7			RSD (20)	
Aroclor-1260 (2) [2C]	8.721622E-02	9.9			RSD (20)	
Aroclor-1260 (3) [2C]	5.788046E-02	7.0			RSD (20)	
Aroclor-1260 (4) [2C]	2.404224E-02	12.9			RSD (20)	
Aroclor 1262 [2C]		0.0			RSD (20)	
Aroclor-1262 (1) [2C]		0.0			RSD (20)	
Aroclor-1262 (2) [2C]		0.0			RSD (20)	
Aroclor-1262 (3) [2C]		0.0			RSD (20)	
Aroclor-1262 (4) [2C]		0.0			RSD (20)	
Aroclor 1268 [2C]		0.0			RSD (20)	
Aroclor-1268 (1) [2C]		0.0			RSD (20)	
Aroclor-1268 (2) [2C]		0.0			RSD (20)	
Aroclor-1268 (3) [2C]		0.0			RSD (20)	
Aroclor-1268 (4) [2C]		0.0			RSD (20)	
Decachlorobiphenyl [2C]	1.170792	18.4			RSD (20)	
Tetrachlorometaxylene [2C]	1.019908	5.4			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 4/18/2022 11:15:14AM

ANALYSIS SEQUENCE

SKD0226

Instrument: ECD7 Element Column ID: j572i10975
Calibration ID: FD00045

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SKD0226-CAL1	0.25PPM AR1660	QC		1	K001286	K001296	
SKD0226-CAL2	0.02PPM AR1660	QC		2	K001292	K001296	
SKD0226-CAL3	0.05PPM AR1660	QC		3	K001293	K001296	
SKD0226-CAL4	1PPM AR1660	QC		4	K001088	K001296	
SKD0226-CAL5	0.1PPM AR1660	QC		5	K001294	K001296	
SKD0226-CAL6	0.5PPM AR1660	QC		6	K001295	K001296	
SKD0226-CAL7	0.25PPM AR1242	QC		7	K001287	K001296	
SKD0226-CAL8	0.25PPM AR1248	QC		8	K001288	K001296	
SKD0226-CAL9	0.25PPM AR1254	QC		9	K001289	K001296	
SKD0226-CALA	0.25PPM AR2162	QC		10	K001290	K001296	
SKD0226-CALB	0.25PPM AR3268	QC		11	K001291	K001296	
SKD0226-SCV1	AR1660SCV1	QC		12	K001263	K001296	
SKD0226-SCV2	AR1242SCV2	QC		13	K001264	K001296	
SKD0226-SCV4	AR1254SCV4	QC		14	K001266	K001296	
SKD0226-SCV3	AR1248SCV3	QC		15	K001265	K001296	
SKD0226-SCV5	AR2162SCV5	QC		16	K001267	K001296	
SKD0226-SCV6	AR3268SCV6	QC		17	K001268	K001296	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	14-APR-2022 09:46	04142201ECD7ECD7.d	1	DDT	
2	14-APR-2022 10:04	04142202ECD7ECD7.d	1	RINSE	
3	14-APR-2022 10:26	04142203ECD7ECD7.d	1	RINSE	
4	14-APR-2022 10:47	04142204ECD7ECD7.d	1	RINSE	
5	14-APR-2022 11:09	04142205ECD7ECD7.d	1	DDTS	
6	14-APR-2022 11:31	04142206ECD7ECD7.d	1	AR1254ICV1	
7	14-APR-2022 11:52	04142207ECD7ECD7.d	1	AR1660ICV2	
8	14-APR-2022 12:14	04142208ECD7ECD7.d	1	BKC0771-BLK1	
9	14-APR-2022 12:35	04142209ECD7ECD7.d	1	BKC0771-BS1	
10	14-APR-2022 12:57	04142210ECD7ECD7.d	1	22C0412-01	
11	14-APR-2022 13:18	04142211ECD7ECD7.d	5	22C0412-01RE1	
12	14-APR-2022 13:40	04142212ECD7ECD7.d	1	AR1248CCV1	
13	14-APR-2022 14:02	04142213ECD7ECD7.d	1	AR1660CCV2	
14	14-APR-2022 18:47	04142214ECD7.D	1	AR1660CCV2	
15	14-APR-2022 19:08	04142215ECD7.D	1	AR1660CCV2	
16	14-APR-2022 19:30	04142216ECD7.D	1	AR1660CCV2	
17	14-APR-2022 19:52	04142217ECD7.D	1	AR1660CCV2	
18	14-APR-2022 20:13	04142218ECD7.D	1	AR1660CCV2	
19	14-APR-2022 20:35	04142219ECD7.D	1	AR1660CCV2	
20	14-APR-2022 20:56	04142220ECD7.D	1	AR1660CCV2	
21	14-APR-2022 21:18	04142221ECD7.D	1	AR1660CCV2	
22	14-APR-2022 21:39	04142222ECD7.D	1	AR1660CCV2	
23	14-APR-2022 22:01	04142223ECD7.D	1	AR1660CCV2	
24	14-APR-2022 22:23	04142224ECD7.D	1	IB	
25	14-APR-2022 22:44	04142225ECD7.D	1	0.25PPMAR1660	
26	14-APR-2022 23:06	04142226ECD7.D	1	0.02PPMAR1660	
27	14-APR-2022 23:27	04142227ECD7.D	1	0.05PPMAR1660	
28	14-APR-2022 23:49	04142228ECD7.D	1	1PPMAR1660	
29	15-APR-2022 00:10	04142229ECD7.D	1	0.1PPMAR1660	
30	15-APR-2022 00:32	04142230ECD7.D	1	0.5PPMAR1660	
31	15-APR-2022 00:53	04142231ECD7.D	1	AR1242	
32	15-APR-2022 01:15	04142232ECD7.D	1	AR1248	
33	15-APR-2022 01:37	04142233ECD7.D	1	AR1254	
34	15-APR-2022 01:58	04142234ECD7.D	1	AR2162	
35	15-APR-2022 02:20	04142235ECD7.D	1	AR3268	
36	15-APR-2022 02:41	04142236ECD7.D	1	AR1660SCV1	
37	15-APR-2022 03:03	04142237ECD7.D	1	AR1242SCV2	
38	15-APR-2022 03:24	04142238ECD7.D	1	AR1248SCV3	
39	15-APR-2022 03:46	04142239ECD7.D	1	AR1254SCV4	
40	15-APR-2022 04:08	04142240ECD7.D	1	AR2162SCV5	
41	15-APR-2022 04:29	04142241ECD7.D	1	AR3268SCV6	
42	15-APR-2022 04:51	04142242ECD7.D	1	0.1 PPM DDTS	
43	15-APR-2022 05:12	04142243ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

ARI Job No.: DDT Method: PCB.m Instrument: ecd7.i Date: 14-APR-2022

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0946	04142201ECD7ECD7.d	DDT		1	NO MANUAL INTEGRATION
1004	04142202ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1026	04142203ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1047	04142204ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1109	04142205ECD7ECD7.d	DDTS		1	NO MANUAL INTEGRATION
1131	04142206ECD7ECD7.d	AR1254ICV1		1	NO MANUAL INTEGRATION
1152	04142207ECD7ECD7.d	AR1660ICV2		1	NO MANUAL INTEGRATION
1214	04142208ECD7ECD7.d	BKC0771-BLK1		1	NO MANUAL INTEGRATION
1235	04142209ECD7ECD7.d	BKC0771-BS1		1	NO MANUAL INTEGRATION
1257	04142210ECD7ECD7.d	22C0412-01		1	Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, Aroclor-1268, IS-BNB, IS-HBBP, Tetrachloro-m-xylene, Decachlorobiphenyl,
1318	04142211ECD7ECD7.d	22C0412-01RE1		5	Aroclor-1016, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, Aroclor-1268, IS-HBBP, Decachlorobiphenyl,
1340	04142212ECD7ECD7.d	AR1248CCV1		1	NO MANUAL INTEGRATION
1402	04142213ECD7ECD7.d	AR1660CCV2		1	NO MANUAL INTEGRATION
1847	04142214ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1908	04142215ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1930	04142216ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1952	04142217ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2013	04142218ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2035	04142219ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2056	04142220ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2118	04142221ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2139	04142222ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2201	04142223ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2223	04142224ECD7.D	IB		1	NO MANUAL INTEGRATION
2244	04142225ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
2306	04142226ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
2327	04142227ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
2349	04142228ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION
0010	04142229ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
0032	04142230ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
0053	04142231ECD7.D	AR1242		1	NO MANUAL INTEGRATION
0115	04142232ECD7.D	AR1248		1	NO MANUAL INTEGRATION
0137	04142233ECD7.D	AR1254		1	NO MANUAL INTEGRATION
0158	04142234ECD7.D	AR2162		1	NO MANUAL INTEGRATION
0220	04142235ECD7.D	AR3268		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0241	04142236ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
0303	04142237ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
0324	04142238ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
0346	04142239ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
0408	04142240ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
0429	04142241ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
0451	04142242ECD7.D	0.1 PPM DDTS		1	NO MANUAL INTEGRATION
0512	04142243ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
0946	04142201ECD7ECD7.d	DDT		1	NO MANUAL INTEGRATION
1004	04142202ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1026	04142203ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1047	04142204ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1109	04142205ECD7ECD7.d	DDTS		1	NO MANUAL INTEGRATION
1131	04142206ECD7ECD7.d	AR1254ICV1		1	NO MANUAL INTEGRATION
1152	04142207ECD7ECD7.d	AR1660ICV2		1	NO MANUAL INTEGRATION
1214	04142208ECD7ECD7.d	BKC0771-BLK1		1	NO MANUAL INTEGRATION
1235	04142209ECD7ECD7.d	BKC0771-BS1		1	NO MANUAL INTEGRATION
1257	04142210ECD7ECD7.d	22C0412-01		1	Aroclor-1016 [2C], Aroclor-1221 [2C], Aroclor-1232 [2C], Aroclor-1242 [2C], Aroclor-1248 [2C], Aroclor-1254 [2C], Aroclor-1260 [2C], Aroclor-1262 [2C], Aroclor-1268 [2C], Tetrachloro-m-xylene [2C],

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1318	04142211ECD7ECD7.d	22C0412-01RE1		5	NO MANUAL INTEGRATION
1340	04142212ECD7ECD7.d	AR1248CCV1		1	NO MANUAL INTEGRATION
1402	04142213ECD7ECD7.d	AR1660CCV2		1	NO MANUAL INTEGRATION
1847	04142214ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1908	04142215ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1930	04142216ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1952	04142217ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2013	04142218ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2035	04142219ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2056	04142220ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2118	04142221ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2139	04142222ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2201	04142223ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2223	04142224ECD7.D	IB		1	NO MANUAL INTEGRATION
2244	04142225ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
2306	04142226ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
2327	04142227ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
2349	04142228ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0010	04142229ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
0032	04142230ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
0053	04142231ECD7.D	AR1242		1	NO MANUAL INTEGRATION
0115	04142232ECD7.D	AR1248		1	NO MANUAL INTEGRATION
0137	04142233ECD7.D	AR1254		1	NO MANUAL INTEGRATION
0158	04142234ECD7.D	AR2162		1	NO MANUAL INTEGRATION
0220	04142235ECD7.D	AR3268		1	NO MANUAL INTEGRATION
0241	04142236ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
0303	04142237ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
0324	04142238ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
0346	04142239ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
0408	04142240ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
0429	04142241ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
0451	04142242ECD7.D	0.1 PPM DDTS		1	NO MANUAL INTEGRATION
0512	04142243ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

Security Status Report

Date: 16-Apr-2022 17:10

04142224ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142225ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142226ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142227ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142228ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142229ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142230ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142231ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142232ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142233ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142234ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142235ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142236ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142237ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142238ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142239ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142240ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142241ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142242ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142243ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m
Last Edit : 16-Apr-2022 17:02 jrains
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\220414.b\04142226ECD7.D
Level 2: \\target\share\chem4\ecd7.i\220414.b\04142227ECD7.D
Level 3: \\target\share\chem4\ecd7.i\220414.b\04142229ECD7.D
Level 4: \\target\share\chem4\ecd7.i\220414.b\04142225ECD7.D
Level 5: \\target\share\chem4\ecd7.i\220414.b\04142230ECD7.D
Level 6: \\target\share\chem4\ecd7.i\220414.b\04142228ECD7.D
Level 7: \\target\share\chem4\ecd7.i\220414.b\04142235ECD7.D
Level 8: \\target\share\chem4\ecd7.i\220414.b\04142242ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	___ RRF	% RSD
	250.000 Level 7	0.000e+00 Level 8						
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.00637	+++++					0.00637	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.01102	+++++					0.01102	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.02597	+++++					0.02597	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.02222	+++++					0.02222	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.07413	+++++					0.07413	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.02887	+++++					0.02887	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.02440	+++++					0.02440	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.00378	+++++					0.00378	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m
Last Edit : 16-Apr-2022 17:02 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
	250.000 Level 7	0.000e+00 Level 8						
(2)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.00735	+++++					0.00735	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.03887	+++++					0.03887	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.01357	+++++					0.01357	0.000
7 Aroclor-1016(1)	0.03202	0.03084	0.02968	0.02874	0.02791	0.02626		
	+++++	+++++					0.02924	7.072
(2)	0.10861	0.10346	0.10021	0.09839	0.09669	0.09173		
	+++++	+++++					0.09985	5.805
(3)	0.04278	0.04085	0.03922	0.03812	0.03730	0.03534		
	+++++	+++++					0.03894	6.773
(4)	0.02775	0.02749	0.02677	0.02636	0.02633	0.02564		
	+++++	+++++					0.02672	2.945
6 Aroclor-1248(1)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.03669	+++++					0.03669	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.04227	+++++					0.04227	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.05372	+++++					0.05372	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.04119	+++++					0.04119	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m
Last Edit : 16-Apr-2022 17:02 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254(1)	#####	#####	#####	#####	#####	#####				
	0.06356	#####							0.06356	0.000
(2)	#####	#####	#####	#####	#####	#####				
	0.02199	#####							0.02199	0.000
(3)	#####	#####	#####	#####	#####	#####				
	0.04079	#####							0.04079	0.000
(4)	#####	#####	#####	#####	#####	#####				
	0.07688	#####							0.07688	0.000
(5)	#####	#####	#####	#####	#####	#####				
	0.08206	#####							0.08206	0.000
9 Aroclor-1260(1)	0.04194	0.03849	0.03785	0.03707	0.03624	0.03533				
	#####	#####							0.03782	6.116
(2)	0.02251	0.02101	0.02060	0.01999	0.01949	0.01893				
	#####	#####							0.02042	6.212
(3)	0.10062	0.07999	0.10451	0.08712	0.08614	0.08400				
	#####	#####							0.09040	10.860
(4)	0.04939	0.04629	0.04558	0.04515	0.04472	0.04387				
	#####	#####							0.04583	4.195
(5)	0.02124	0.01970	0.01954	0.01928	0.01876	0.01826				
	#####	#####							0.01946	5.244
10 Aroclor-1262(1)	#####	#####	#####	#####	#####	#####				
	0.03468	#####							0.03468	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m
Last Edit : 16-Apr-2022 17:02 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	#####	#####	#####	#####	#####	#####				
	0.04473	#####							0.04473	0.000
(3)	#####	#####	#####	#####	#####	#####				
	0.04590	#####							0.04590	0.000
(4)	#####	#####	#####	#####	#####	#####				
	0.03814	#####							0.03814	0.000
11 Aroclor-1268(1)	#####	#####	#####	#####	#####	#####				
	0.12211	#####							0.12211	0.000
(2)	#####	#####	#####	#####	#####	#####				
	0.11236	#####							0.11236	0.000
(3)	#####	#####	#####	#####	#####	#####				
	0.09566	#####							0.09566	0.000
(4)	#####	#####	#####	#####	#####	#####				
	0.28572	#####							0.28572	0.000
42 2,4-DDE	#####	#####	#####	#####	#####	#####				
	#####	310							310	0.000
43 2,4-DDD	#####	#####	#####	#####	#####	#####				
	#####	482							482	0.000
44 2,4-DDT	#####	#####	#####	#####	#####	#####				
	#####	376							376	0.000
46 4,4-DDE	#####	#####	#####	#####	#####	#####				
	#####	684							684	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m
Last Edit : 16-Apr-2022 17:02 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
	250.000 Level 7	0.000e+00 Level 8						
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	399					399	0.000
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	610					610	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++
$ 1 Tetrachloro-m-xylene	1.14710	1.05678	1.05176	1.06503	1.07094	1.05070		
	+++++	+++++					1.07372	3.426
$ 13 Decachlorobiphenyl	0.94653	0.89372	0.81796	0.79631	0.76785	0.75418		
	+++++	+++++					0.82943	9.107

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Last Edit : 16-Apr-2022 16:56 ecd7.i
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142226ECD7.D
Level 2: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142227ECD7.D
Level 3: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142229ECD7.D
Level 4: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142225ECD7.D
Level 5: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142230ECD7.D
Level 6: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142228ECD7.D
Level 7: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142235ECD7.D
Level 8: \\target\share\chem4\ecd7.i\220414.b\220414.b\04142242ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
1 Aroclor-1221 [2C](1)	#####	#####	#####	#####	#####	#####	0.00498	#####	0.00498	0.000
(2)	#####	#####	#####	#####	#####	#####	0.01183	#####	0.01183	0.000
(3)	#####	#####	#####	#####	#####	#####	0.02141	#####	0.02141	0.000
4 Aroclor-1232 [2C](1)	#####	#####	#####	#####	#####	#####	0.00300	#####	0.00300	0.000
(2)	#####	#####	#####	#####	#####	#####	0.01853	#####	0.01853	0.000
(3)	#####	#####	#####	#####	#####	#####	0.03806	#####	0.03806	0.000
(4)	#####	#####	#####	#####	#####	#####	0.01065	#####	0.01065	0.000
3 Aroclor-1242 [2C](1)	#####	#####	#####	#####	#####	#####	0.03359	#####	0.03359	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Last Edit : 16-Apr-2022 16:56 ecd7.i
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
	250.000 Level 7	0.000e+00 Level 8						
(2)	#####	#####	#####	#####	#####	#####		
	0.07450	#####					0.07450	0.000
(3)	#####	#####	#####	#####	#####	#####		
	0.02283	#####					0.02283	0.000
(4)	#####	#####	#####	#####	#####	#####		
	0.02753	#####					0.02753	0.000
6 Aroclor-1248 [2C](1)	#####	#####	#####	#####	#####	#####		
	0.03372	#####					0.03372	0.000
(2)	#####	#####	#####	#####	#####	#####		
	0.03788	#####					0.03788	0.000
(3)	#####	#####	#####	#####	#####	#####		
	0.05532	#####					0.05532	0.000
(4)	#####	#####	#####	#####	#####	#####		
	0.05243	#####					0.05243	0.000
7 Aroclor-1016 [2C](1)	0.04546	0.04407	0.04440	0.04390	0.04262	0.03947		
	#####	#####					0.04332	4.836
(2)	0.09638	0.09580	0.09860	0.10006	0.09934	0.09910		
	#####	#####					0.09821	1.751
(3)	0.03784	0.03732	0.03794	0.03890	0.03891	0.03849		
	#####	#####					0.03824	1.674
(4)	0.02054	0.02113	0.02203	0.02348	0.02440	0.02478		
	#####	#####					0.02273	7.716

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Last Edit : 16-Apr-2022 16:56 ecd7.i
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
	250.000 Level 7	0.000e+00 Level 8						
8 Aroclor-1254 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.05315	+++++					0.05315	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.02033	+++++					0.02033	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.04233	+++++					0.04233	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.09393	+++++					0.09393	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.04297	+++++					0.04297	0.000
10 Aroclor-1262 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.05271	+++++					0.05271	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.04496	+++++					0.04496	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.05192	+++++					0.05192	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++		
	0.04640	+++++					0.04640	0.000
9 Aroclor-1260 [2C](1)	0.03239	0.03110	0.03217	0.03326	0.03424	0.03544		
	+++++	+++++					0.03310	4.719
(2)	0.07981	0.07970	0.08367	0.08620	0.09141	0.10251		
	+++++	+++++					0.08722	9.949

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Last Edit : 16-Apr-2022 16:56 ecd7.i
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
	250.000 Level 7	0.000e+00 Level 8						
(3)	0.05296	0.05774	0.05507	0.05728	0.05950	0.06473		
	#####	#####					0.05788	6.996
(4)	0.02094	0.02029	0.02369	0.02476	0.02616	0.02842		
	#####	#####					0.02404	12.892
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####		
	0.13733	#####					0.13733	0.000
(2)	#####	#####	#####	#####	#####	#####		
	0.14637	#####					0.14637	0.000
(3)	#####	#####	#####	#####	#####	#####		
	0.12874	#####					0.12874	0.000
(4)	#####	#####	#####	#####	#####	#####		
	0.50756	#####					0.50756	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####		
	#####	563					563	0.000
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####		
	#####	368					368	0.000
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####		
	#####	373					373	0.000
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####		
	#####	620					620	0.000
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####		
	#####	505					505	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 14-APR-2022 22:44
End Cal Date : 15-APR-2022 04:51
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Last Edit : 16-Apr-2022 16:56 ecd7.i
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	#####	#####	#####	#####	#####	#####			#####	#####
49 Hexachlorobenzene	#####	#####	#####	#####	#####	#####			#####	#####
$ 2 Tetrachloro-m-xylene [2C]	1.00617 #####	0.96089 #####	0.98472	1.00751	1.04148	1.11868			1.01991	5.421
$ 13 Decachlorobiphenyl [2C]	0.93836 #####	1.03686 #####	1.10748	1.29259	1.47868	#####			1.17079	18.398

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\220414.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	04142225ECD7	04142226ECD7	04142227ECD7	04142228ECD7	04142229ECD7	04142230ECD7
INJ.DATE:	14-APR-2022	14-APR-2022	14-APR-2022	14-APR-2022	15-APR-2022	15-APR-2022
INJ.TIME:	22:44	23:06	23:27	23:49	00:10	00:32

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.546	3.545	3.546	3.543	3.548	3.545	3.546	3.446-3.646	3.545	0.001
$ 1 Tetrachloro-m-xylene	5.860	5.859	5.861	5.861	5.861	5.860	5.860	5.760-5.960	5.860	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.792	4.692-4.892	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.315	7.215-7.415	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.795	4.695-4.895	+++++	+++++
7 Aroclor-1016	7.316	7.315	7.316	7.315	7.316	7.315	7.316	7.216-7.416	7.315	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.444	8.344-8.544	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.334	9.234-9.434	+++++	+++++
9 Aroclor-1260	11.082	11.082	11.082	11.081	11.082	11.079	11.082	10.982-11.182	11.081	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.856	10.756-10.956	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.281	12.181-12.381	+++++	+++++
$ 13 Decachlorobiphenyl	13.934	13.932	13.933	13.931	13.933	13.931	13.934	13.834-14.034	13.932	0.001
* 12 IS-HBBP	14.300	14.297	14.299	14.297	14.299	14.297	14.300	14.200-14.400	14.298	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.297	9.247-9.347	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.837	9.787-9.887	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.335	10.285-10.385	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.716	9.616-9.816	+++++	+++++

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\220414.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.280	10.180-10.380	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.789	10.689-10.889	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\220414.b\220414.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	04142225ECD7	04142226ECD7	04142227ECD7	04142228ECD7	04142229ECD7	04142230ECD7
INJ.DATE:	14-APR-2022	14-APR-2022	14-APR-2022	14-APR-2022	15-APR-2022	15-APR-2022
INJ.TIME:	22:44	23:06	23:27	23:49	00:10	00:32

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.990	3.989	3.991	3.988	3.992	3.989	3.990	3.890-4.090	3.990	0.001
$ 2 Tetrachloro-m-xylene [	5.748	5.746	5.748	5.749	5.748	5.748	5.748	5.648-5.848	5.748	0.001
1 Aroclor-1221 [2C]	#####	#####	#####	#####	#####	#####	5.025	4.925-5.125	#####	#####
4 Aroclor-1232 [2C]	#####	#####	#####	#####	#####	#####	5.029	4.929-5.129	#####	#####
3 Aroclor-1242 [2C]	#####	#####	#####	#####	#####	#####	7.310	7.210-7.410	#####	#####
6 Aroclor-1248 [2C]	#####	#####	#####	#####	#####	#####	8.359	8.259-8.459	#####	#####
7 Aroclor-1016 [2C]	7.311	7.311	7.312	7.311	7.312	7.311	7.311	7.211-7.411	7.311	0.001
8 Aroclor-1254 [2C]	#####	#####	#####	#####	#####	#####	9.500	9.400-9.600	#####	#####
10 Aroclor-1262 [2C]	#####	#####	#####	#####	#####	#####	11.254	11.154-11.354	#####	#####
9 Aroclor-1260 [2C]	11.710	11.711	11.711	11.706	11.710	11.707	11.710	11.610-11.810	11.709	0.002
11 Aroclor-1268 [2C]	#####	#####	#####	#####	#####	#####	12.488	12.388-12.588	#####	#####
$ 13 Decachlorobiphenyl [2C	14.183	14.179	14.180	14.197	14.180	14.183	14.183	14.083-14.283	14.184	0.007
* 12 IS-HBBP [2C]	15.074	15.071	15.073	15.067	15.071	15.071	15.074	14.974-15.174	15.071	0.002
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	9.955	9.905-10.005	#####	#####
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	9.589	9.539-9.639	#####	#####
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	10.260	10.160-10.360	#####	#####
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	10.709	10.609-10.809	#####	#####

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\220414.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\220414.b\220414.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.143	11.043-11.243	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142224ECD7.D
Data file 2: /220414.b/220414.b/04142224ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 14-APR-2022 22:23
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.862	0.001	677745	5.747	-0.002	471581	35.7	40.9	13.5	Tetrachloro-m-xylene
13.934	0.004	591126	14.183	0.002	1129822	32.8	44.2	29.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	1413864	191.0 <-
Hexabromobiphenyl	571136	1739655	204.6 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	905001	-1.1
Hexabromobiphenyl	1789656	1745990	-2.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	7.677	-0.012	787	0.4	2	---			0.0
Aroclor-1016	3	7.832	0.006	280	0.4	3	---			0.0
Aroclor-1016	4	7.941	0.008	188	0.4	4	---			0.0
Total Col1Ave (3 peaks):					0.4	Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	5.125	0.100	454	8.1
Aroclor-1221	2	6.171	-0.011	154	0.8	2	6.380	0.025	4965	37.1
Aroclor-1221	3	6.430	-0.000	241	0.5	3	6.690	0.013	982	4.1
Col1Ave: <3 Quant Peaks						Col2Ave: 16.4				
Aroclor-1232	1	---			0.0	1	5.125	0.095	454	13.4
Aroclor-1232	2	6.171	-0.013	154	1.2	2	---			0.0
Aroclor-1232	3	7.677	-0.013	787	1.1	3	---			0.0
Aroclor-1232	4	8.615	-0.002	1692	7.1	4	8.692	-0.076	600	5.0
Total Col1Ave (3 peaks):					3.1	Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	7.677	-0.011	787	0.6	2	---			0.0
Aroclor-1242	3	9.034	0.008	5914	11.6	3	9.345	0.063	453	1.8
Aroclor-1242	4	9.338	0.080	4024	9.3	4	9.548	-0.080	169	0.5
Total Col1Ave (3 peaks):					7.2	Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	8.449	0.004	1005	1.5	1	8.372	0.013	151	0.4
Aroclor-1248	2	8.615	0.001	1692	2.3	2	8.692	-0.074	600	1.4
Aroclor-1248	3	9.034	0.007	5914	6.2	3	---			0.0
Aroclor-1248	4	9.338	0.080	4024	5.5	4	9.548	-0.076	169	0.3
Total Col1Ave (4 peaks):					3.9	Total Col2Ave (3 peaks):			0.7	RPD = 140*
Corrected Ave (3 peaks):					3.1	Corrected Ave: < 3 Peaks				
Aroclor-1254	1	9.338	0.005	4024	3.6	1	9.508	0.008	147	0.2
Aroclor-1254	2	---			0.0	2	9.956	0.026	659	2.9
Aroclor-1254	3	9.716	0.015	1307	1.8	3	10.048	0.027	242	0.5
Aroclor-1254	4	9.863	0.027	4873	3.6	4	10.212	0.040	623	0.6
Aroclor-1254	5	10.161	-0.018	2326	1.6	5	10.628	0.009	475	1.0
Total Col1Ave (4 peaks):					2.6	Total Col2Ave (5 peaks):			1.0	RPD = 87*
Corrected Ave (3 peaks):					2.3	Corrected Ave (4 peaks):			0.6	RPD = 121*
Aroclor-1260	1	11.083	0.004	2327	2.8	1	11.716	0.008	503	0.7
Aroclor-1260	2	11.539	0.068	3673	8.3	2	11.976	0.006	825	0.4
Aroclor-1260	3	11.768	0.003	2532	1.3	3	12.564	0.010	397	0.3
Aroclor-1260	4	12.175	0.007	2181	2.2	4	13.355	0.077	6251	11.9
Aroclor-1260	5	12.273	-0.006	1509	3.6	NS	---			----
Total Col1Ave (5 peaks):					3.6	Total Col2Ave (4 peaks):			3.3	RPD = 8
Corrected Ave (4 peaks):					2.5	Corrected Ave (3 peaks):			0.5	RPD = 135*
Aroclor-1262	1	10.861	0.005	7921	10.5	1	11.267	0.013	907	0.8
Aroclor-1262	2	12.273	-0.008	1509	1.6	2	11.716	0.009	503	0.5
Aroclor-1262	3	12.359	0.005	1499	1.5	3	12.481	-0.008	1242	1.1
Aroclor-1262	4	13.023	0.003	4408	5.3	4	13.355	0.075	6251	6.2
Total Col1Ave (4 peaks):					4.7	Total Col2Ave (4 peaks):			2.1	RPD = 75*
Corrected Ave (3 peaks):					2.8	Corrected Ave (3 peaks):			0.8	RPD = 111*
Aroclor-1268	1	12.273	-0.008	1509	0.6	1	12.481	-0.007	1242	0.4
Aroclor-1268	2	12.359	0.007	1499	0.6	2	12.564	0.009	397	0.1
Aroclor-1268	3	12.659	-0.079	24975	12.0	3	12.956	0.004	610	0.2
Aroclor-1268	4	13.527	0.003	26765	4.3	4	13.766	-0.004	1463	0.1
Total Col1Ave (4 peaks):					4.4	Total Col2Ave (4 peaks):			0.2	RPD = 181*
Corrected Ave (3 peaks):					1.8	Corrected Ave (3 peaks):			0.2	RPD = 168*

Total PCB Area Col1 (5.962 - 13.830) = 216060 Col1 Total PCB = 0.0 ppm*

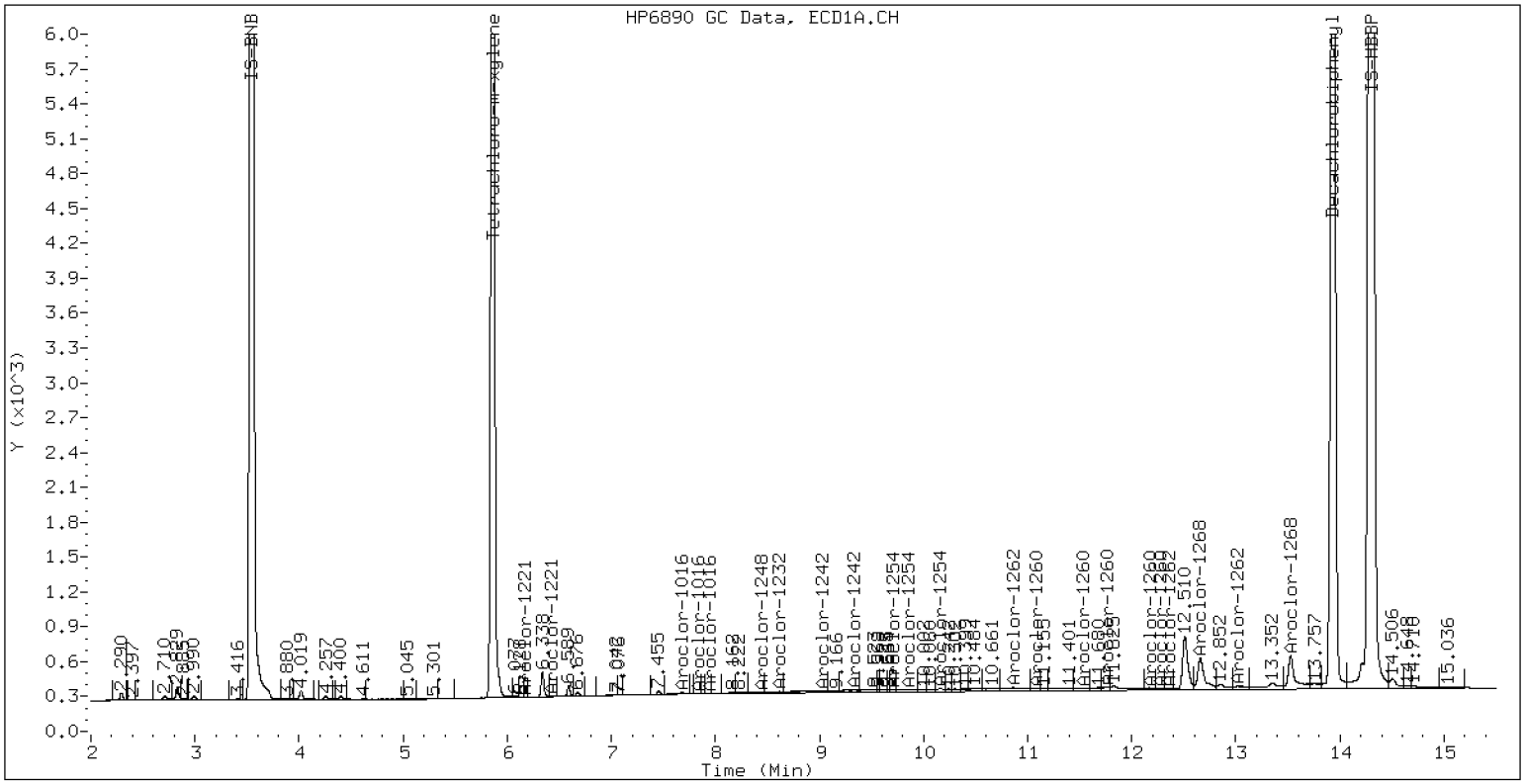
Total PCB Area Col2 (5.962 - 13.830) = 46367 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

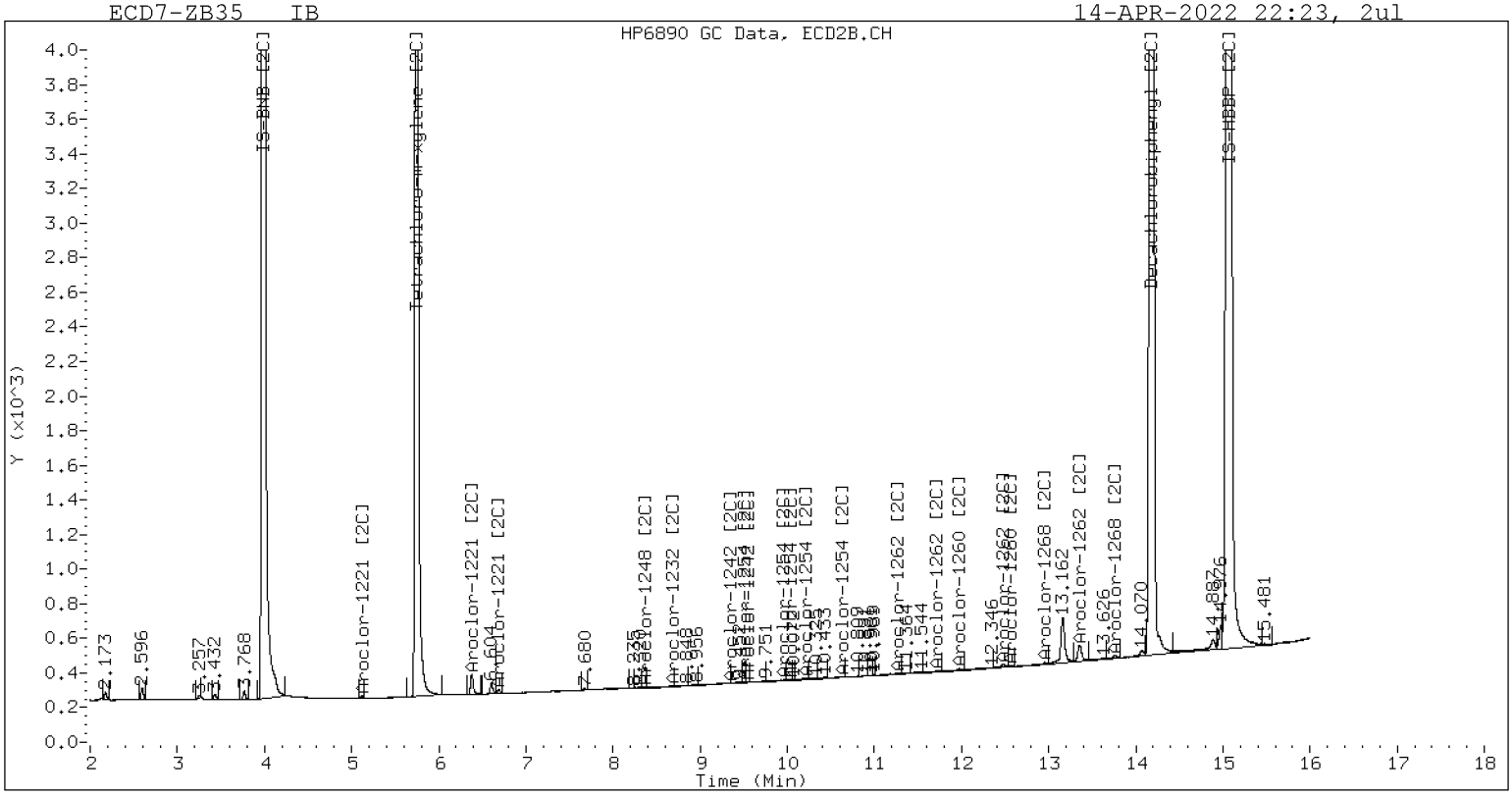
PCB Dual Column Chromatograms

ECD7-ZB5 IB 14-APR-2022 22:23, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 14-APR-2022 22:23, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142225ECD7.D
Data file 2: /220414.b/220414.b/04142225ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 14-APR-2022 22:44
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.001	258748	5.748	-0.001	460915	39.7	39.5	0.4	Tetrachloro-m-xylene
13.934	0.004	227402	14.183	0.002	1156648	38.4	44.2	13.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	485900	0.0
Hexabromobiphenyl	571136	571136	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	914958	0.0
Hexabromobiphenyl	1789656	1789656	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.316	0.001	43647	245.7	1	7.311	0.001	125531	253.4
Aroclor-1016	2	7.689	-0.000	149404	246.4	2	7.903	-0.001	286099	254.7
Aroclor-1016	3	7.829	0.002	57885	244.8	3	8.102	0.002	111230	254.4
Aroclor-1016	4	7.935	0.001	40021	246.6	4	8.274	0.002	67147	258.3

Total Col1Ave (4 peaks): 245.9 Total Col2Ave (4 peaks): 255.2 RPD = 4
Corrected Ave (3 peaks): 245.6 Corrected Ave (3 peaks): 254.1 RPD = 3

CalAmt %D: -1.7 CalAmt %D: 2.1

Aroclor-1260	1	11.082	0.003	66155	245.0	1	11.710	0.002	186013	251.2
Aroclor-1260	2	11.474	0.003	35687	244.8	2	11.973	0.002	482068	247.1
Aroclor-1260	3	11.767	0.002	155491	240.9	3	12.556	0.002	320375	247.4
Aroclor-1260	4	12.170	0.002	80579	246.3	4	13.281	0.003	138493	257.5
Aroclor-1260	5	12.282	0.003	34407	247.6	NS	---			----

Total Col1Ave (5 peaks): 244.9 Total Col2Ave (4 peaks): 250.8 RPD = 2
Corrected Ave (4 peaks): 244.2 Corrected Ave (3 peaks): 248.6 RPD = 2

CalAmt %D: -2.0 CalAmt %D: 0.3

Total PCB Area Col1 (5.962 - 13.830) = 2010254 Col1 Total PCB = 0.5 ppm*

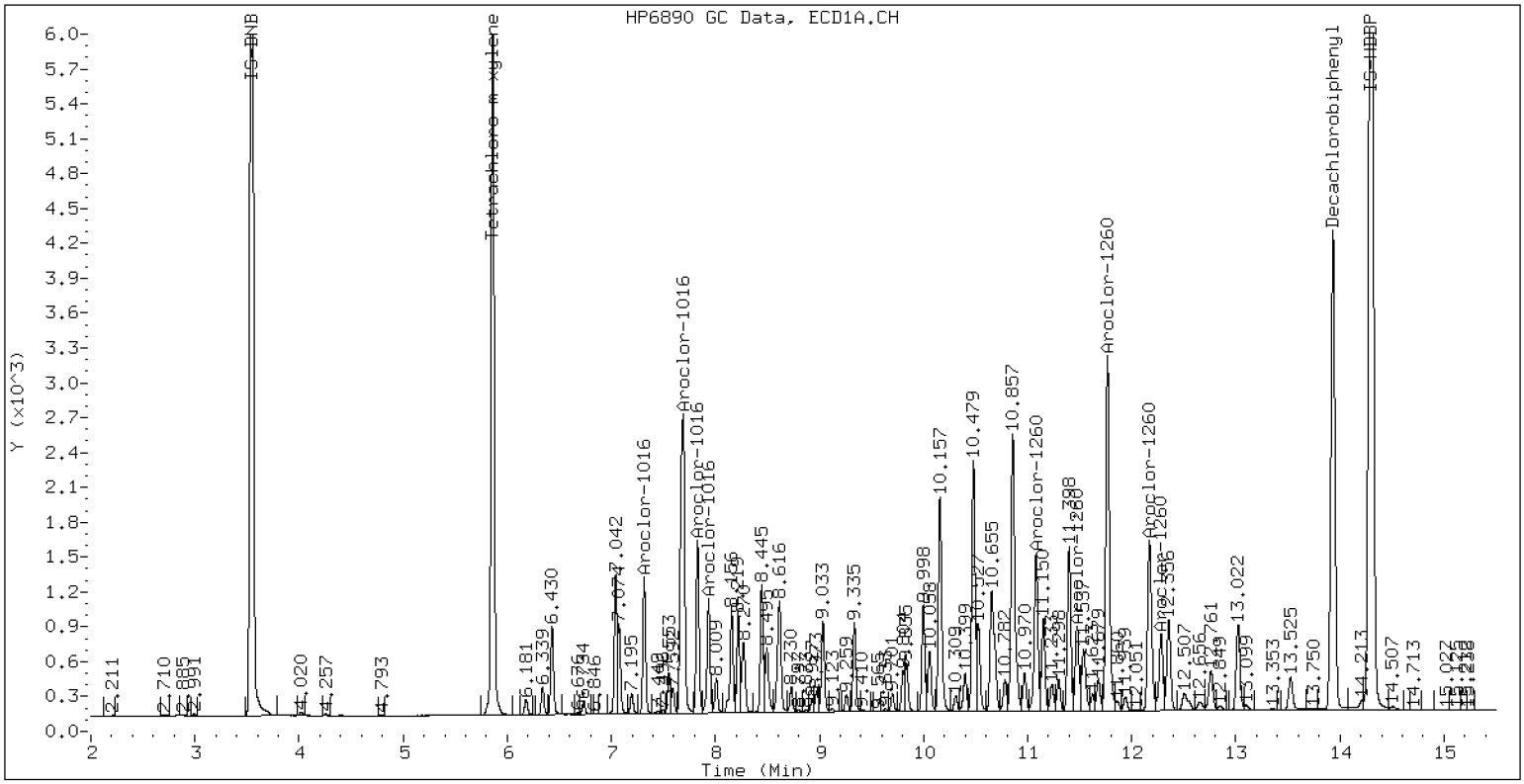
Total PCB Area Col2 (5.962 - 13.830) = 4529227 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

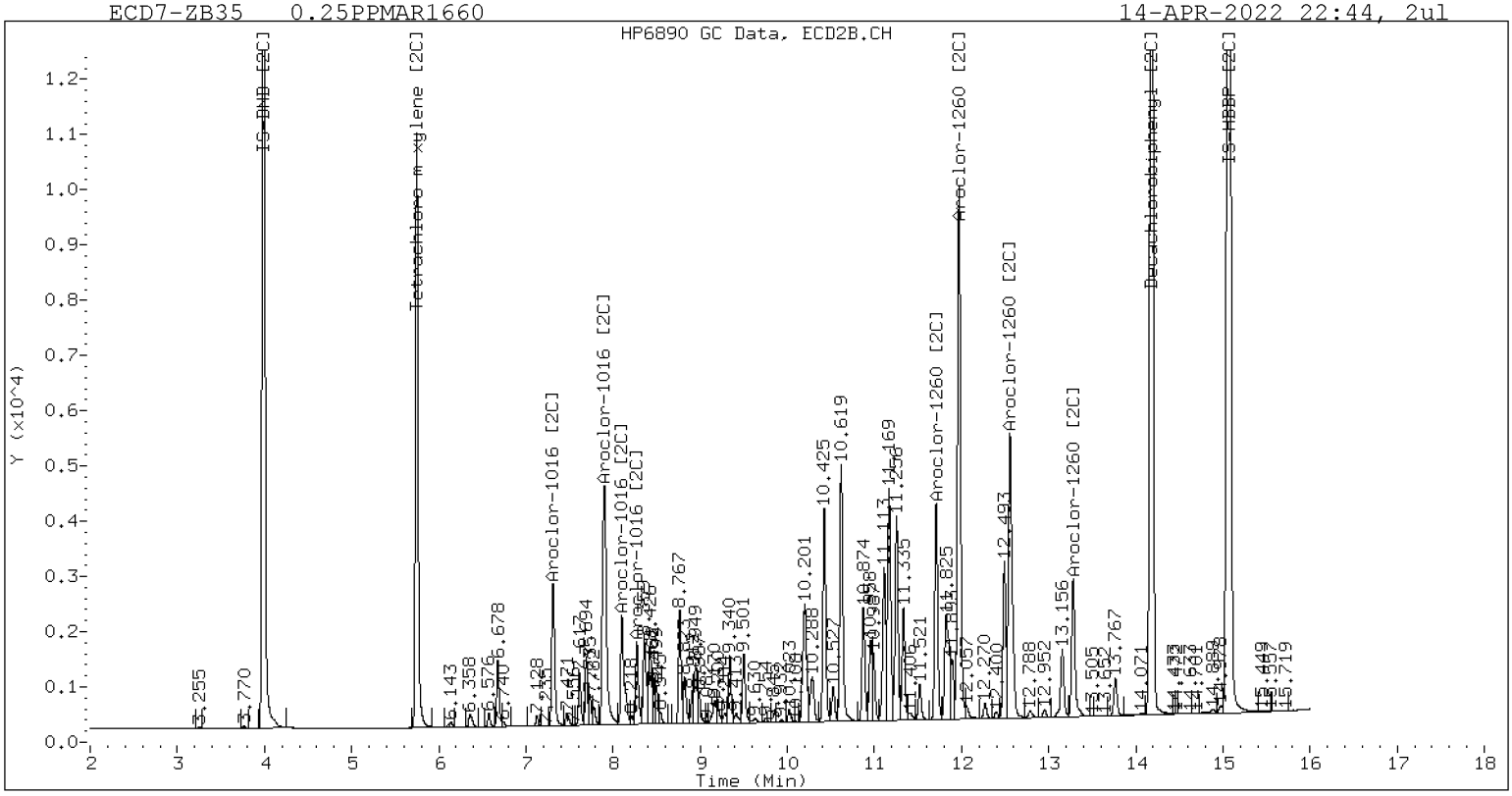
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 14-APR-2022 22:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 14-APR-2022 22:44, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142226ECD7.D
Data file 2: /220414.b/220414.b/04142226ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 14-APR-2022 23:06
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.003	22443	5.746	-0.002	37300	3.4	3.2	8.0	Tetrachloro-m-xylene
13.932	0.001	21862	14.179	-0.002	67901	3.7	2.6	35.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	489125	0.7
Hexabromobiphenyl	571136	577423	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	926782	1.3
Hexabromobiphenyl	1789656	1809037	1.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	3916	21.9	1	7.311	0.000	10533	21.0
Aroclor-1016	2	7.690	0.001	13281	21.8	2	7.905	0.001	22331	19.6
Aroclor-1016	3	7.828	0.002	5231	22.0	3	8.105	0.004	8768	19.8
Aroclor-1016	4	7.936	0.003	3393	20.8	4	8.277	0.006	4760	18.1

Total Col1Ave (4 peaks): 21.6 Total Col2Ave (4 peaks): 19.6 RPD = 10
Corrected Ave (3 peaks): 21.5 Corrected Ave (3 peaks): 19.2 RPD = 11

CalAmt %D: 8.0 CalAmt %D: -1.9

Aroclor-1260	1	11.082	0.003	6055	22.2	1	11.711	0.004	14649	19.6
Aroclor-1260	2	11.475	0.004	3250	22.0	2	11.972	0.002	36096	18.3
Aroclor-1260	3	11.768	0.002	14525	22.3	3	12.558	0.004	23953	18.3
Aroclor-1260	4	12.172	0.004	7130	21.6	4	13.282	0.004	9470	17.4
Aroclor-1260	5	12.282	0.003	3066	21.8	NS	---			----

Total Col1Ave (5 peaks): 22.0 Total Col2Ave (4 peaks): 18.4 RPD = 18
Corrected Ave (4 peaks): 21.9 Corrected Ave (3 peaks): 18.0 RPD = 20

CalAmt %D: 9.9 CalAmt %D: -8.0

Total PCB Area Col1 (5.962 - 13.830) = 193921 Col1 Total PCB = 0.0 ppm*

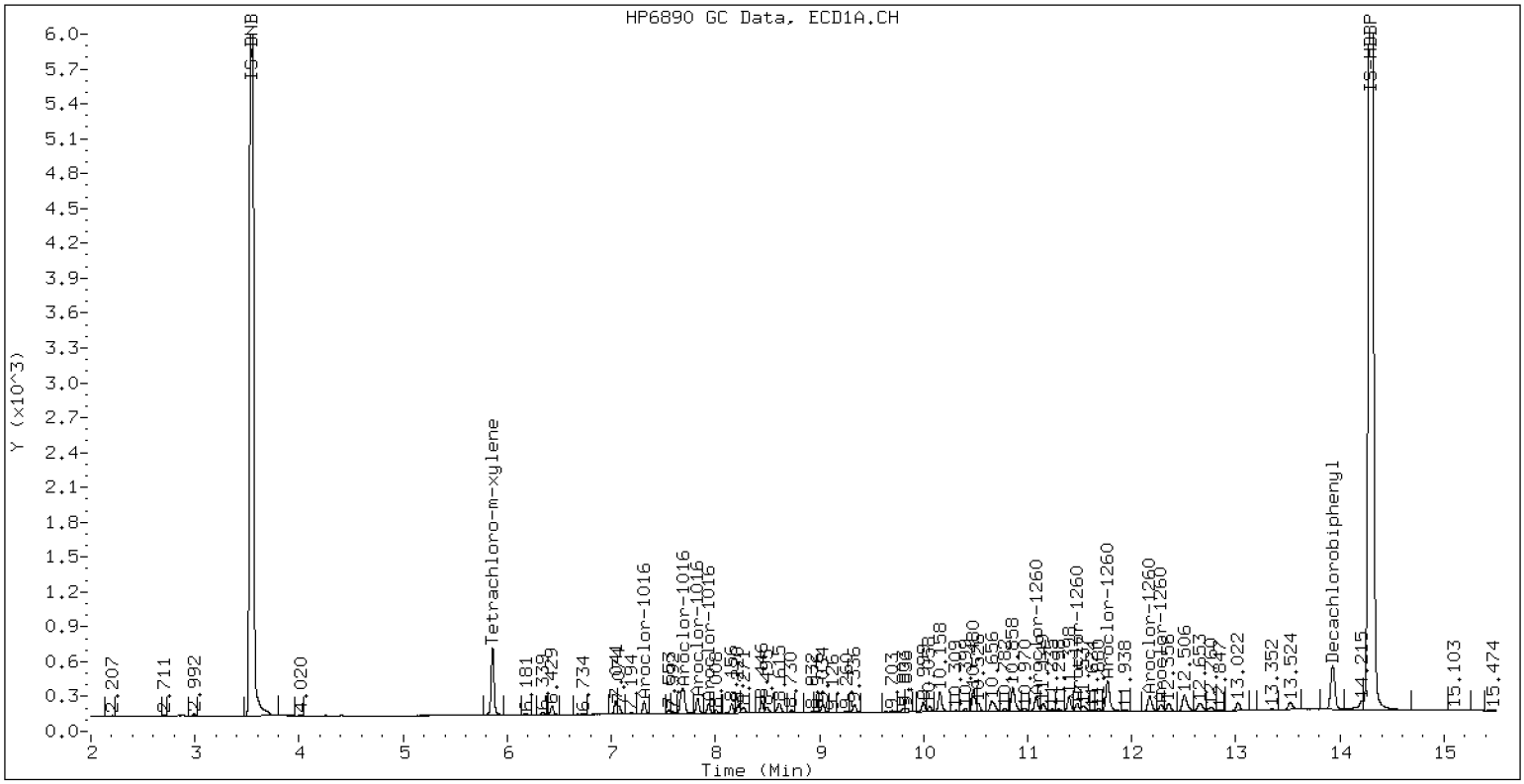
Total PCB Area Col2 (5.962 - 13.830) = 366192 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

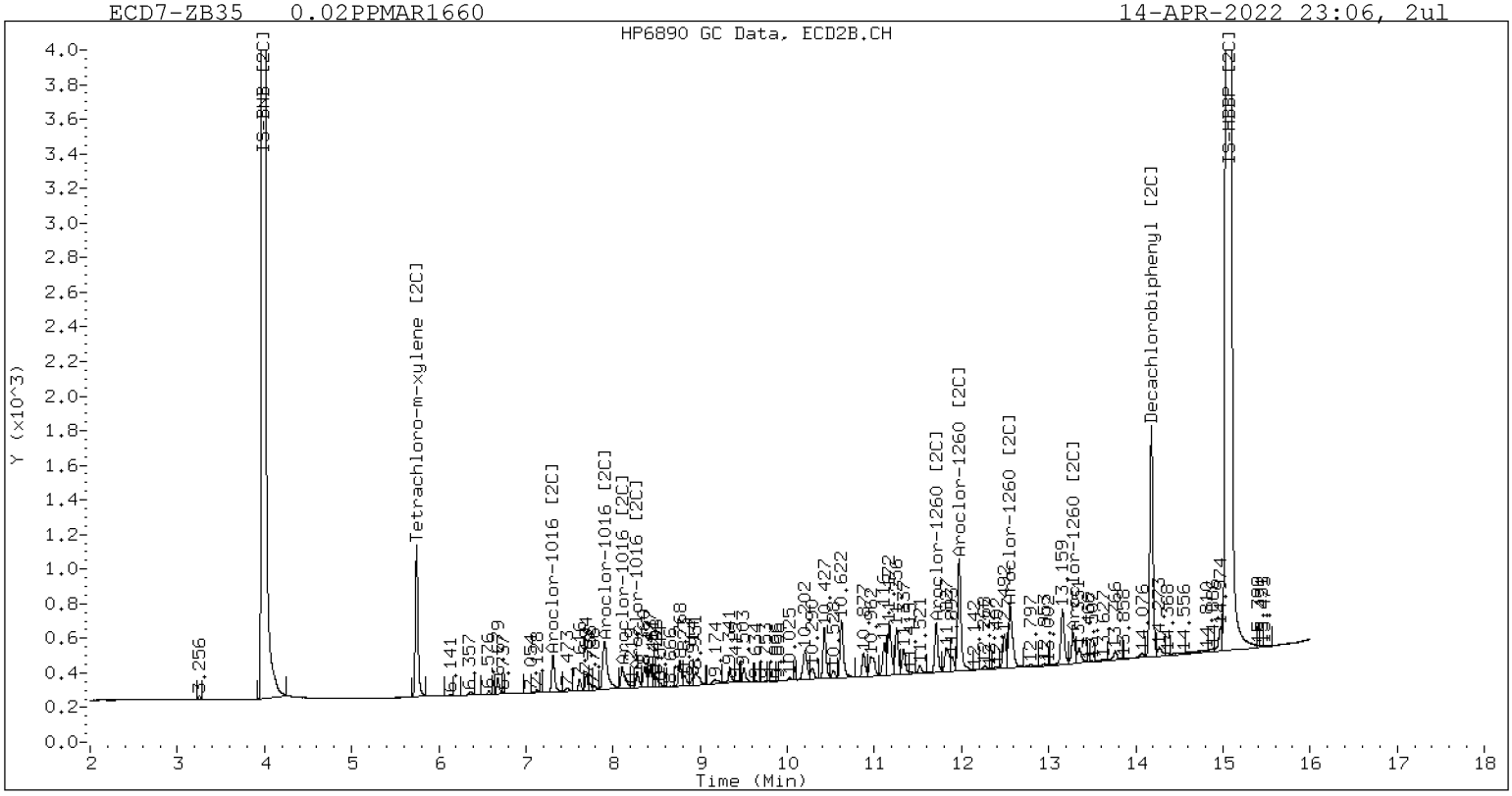
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 14-APR-2022 23:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 14-APR-2022 23:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142227ECD7.D
Data file 2: /220414.b/220414.b/04142227ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 14-APR-2022 23:27
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	50779	5.748	-0.000	88448	7.9	7.5	4.4	Tetrachloro-m-xylene
13.933	0.002	51600	14.180	-0.001	187362	8.6	7.1	19.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	480509	-1.1
Hexabromobiphenyl	571136	577360	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	920481	0.6
Hexabromobiphenyl	1789656	1807020	1.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.316	0.002	9262	52.7	1	7.312	0.002	25351	50.9
Aroclor-1016	2	7.690	0.001	31070	51.8	2	7.906	0.002	55116	48.8
Aroclor-1016	3	7.829	0.002	12268	52.5	3	8.105	0.004	21470	48.8
Aroclor-1016	4	7.935	0.002	8256	51.4	4	8.276	0.005	12158	46.5
Total Col1Ave (4 peaks):				52.1		Total Col2Ave (4 peaks):			48.7	RPD = 7
Corrected Ave (3 peaks):				51.9		Corrected Ave (3 peaks):			48.0	RPD = 8
CalAmt %D:				4.2		CalAmt %D:			-2.5	
Aroclor-1260	1	11.082	0.003	13890	50.9	1	11.711	0.004	35120	47.0
Aroclor-1260	2	11.476	0.005	7582	51.4	2	11.972	0.002	90010	45.7
Aroclor-1260	3	11.769	0.003	28863	44.2	3	12.558	0.004	65212	49.9
Aroclor-1260	4	12.172	0.004	16705	50.5	4	13.283	0.005	22912	42.2
Aroclor-1260	5	12.282	0.003	7109	50.6	NS	---			----
Total Col1Ave (5 peaks):				49.5		Total Col2Ave (4 peaks):			46.2	RPD = 7
Corrected Ave (4 peaks):				49.1		Corrected Ave (3 peaks):			45.0	RPD = 9
CalAmt %D:				-0.9		CalAmt %D:			-7.6	

Total PCB Area Col1 (5.962 - 13.830) = 546209 Col1 Total PCB = 0.1 ppm*

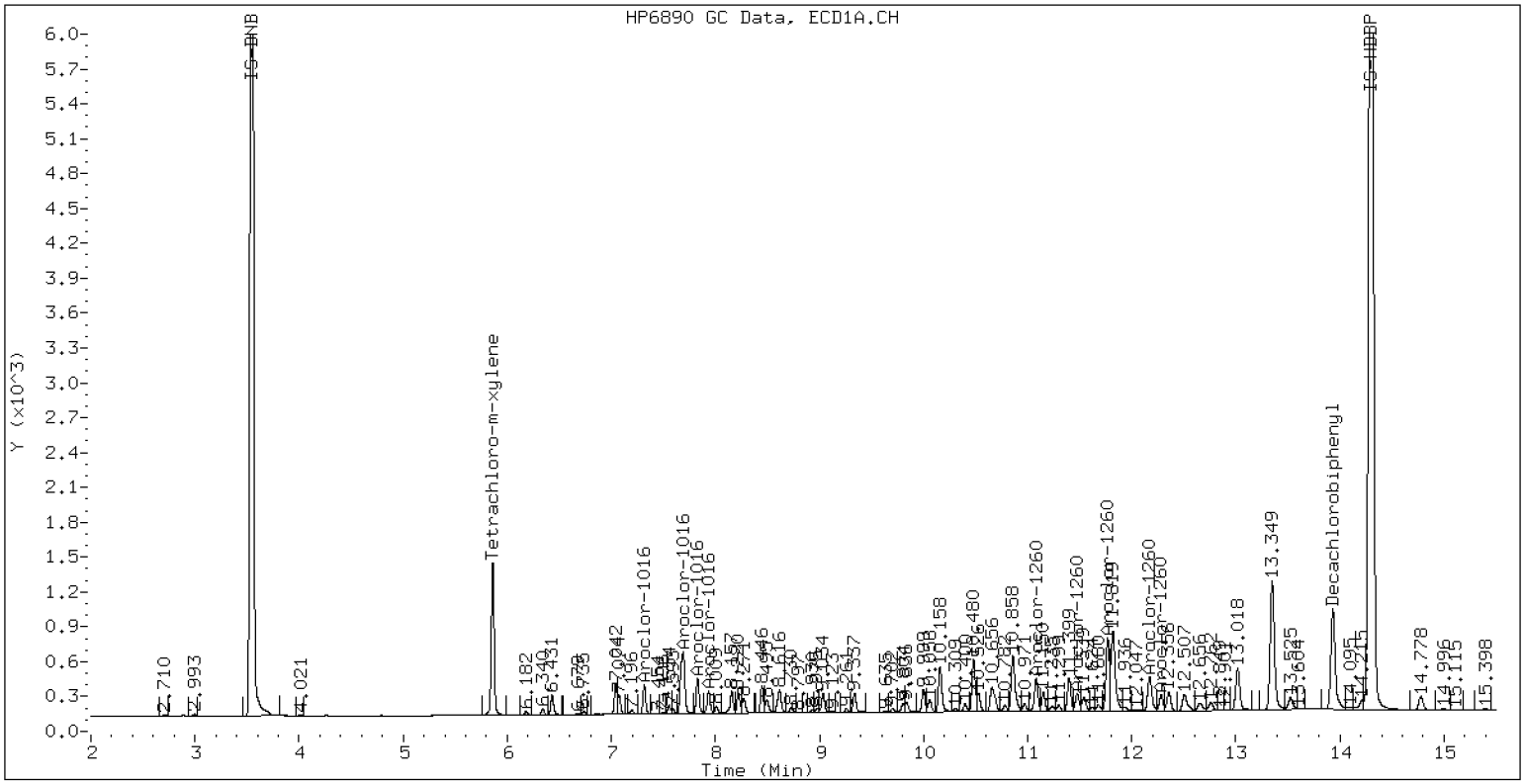
Total PCB Area Col2 (5.962 - 13.830) = 992399 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

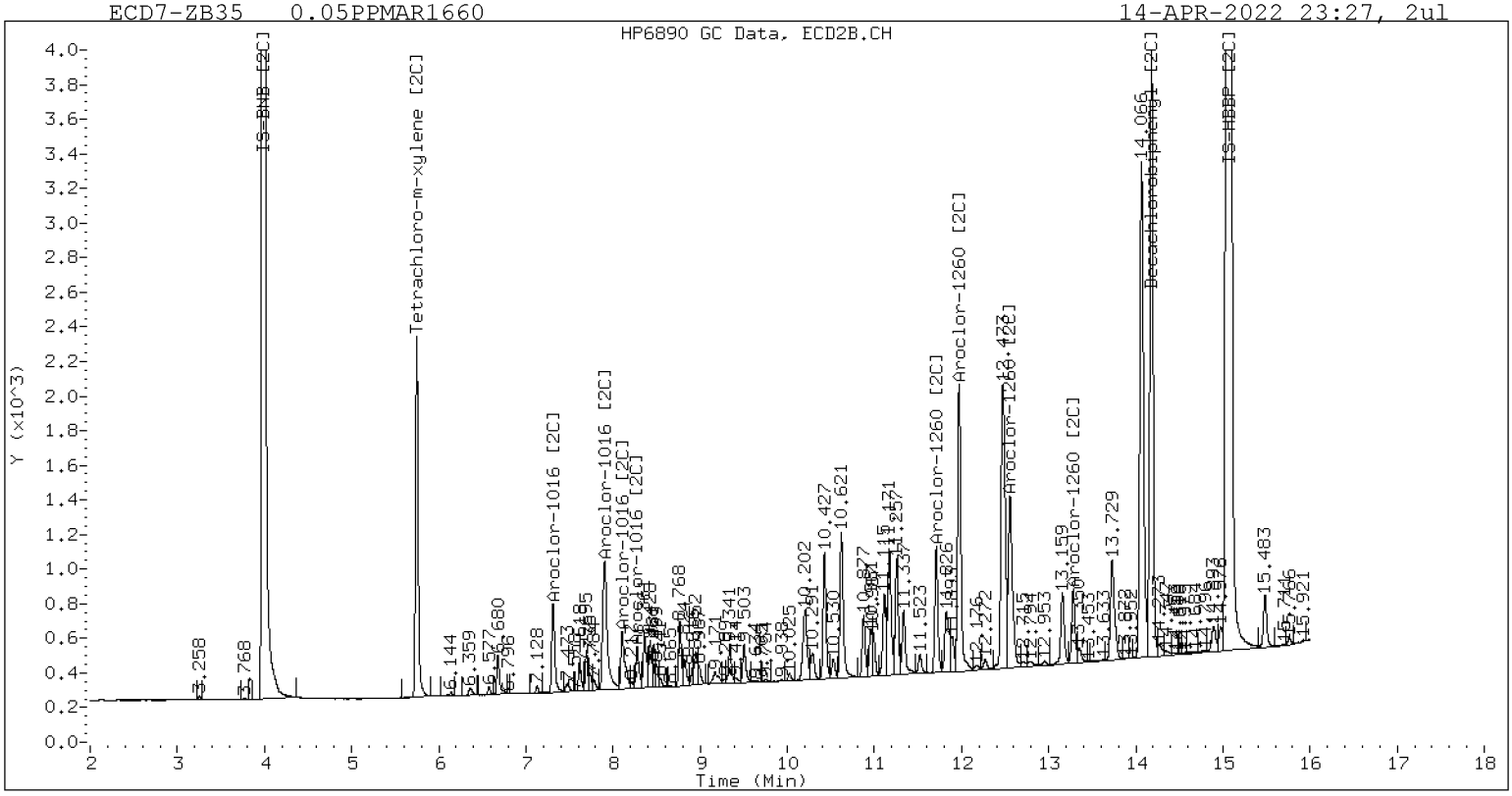
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 14-APR-2022 23:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 14-APR-2022 23:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142228ECD7.D
Data file 2: /220414.b/220414.b/04142228ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1PPMAR1660
Client ID:
Injection Date: 14-APR-2022 23:49
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	978449	5.749	0.001	1969637	156.6	175.5	11.4	Tetrachloro-m-xylene
13.931	0.000	818992	14.197	0.015	4809081	145.5	205.0	34.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	465616	-4.2
Hexabromobiphenyl	571136	542966	-4.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	880339	-3.8
Hexabromobiphenyl	1789656	1603132	-10.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	152851	898.0	1	7.311	0.000	434355	911.2
Aroclor-1016	2	7.689	0.000	533874	918.7	2	7.904	0.001	1090471	1009.0
Aroclor-1016	3	7.827	0.001	205693	907.7	3	8.100	-0.001	423585	1006.7
Aroclor-1016	4	7.933	-0.000	149257	959.7	4	8.271	-0.001	272717	1090.4

Total Col1Ave (4 peaks): 921.0 Total Col2Ave (4 peaks): 1004.3 RPD = 9
Corrected Ave (3 peaks): 908.1 Corrected Ave (3 peaks): 975.6 RPD = 7

CalAmt %D: -7.9 CalAmt %D: 0.4

Aroclor-1260	1	11.081	0.002	239778	934.1	1	11.706	-0.001	710252	1070.8
Aroclor-1260	2	11.473	0.002	128448	926.7	2	11.972	0.001	2054236	1175.4
Aroclor-1260	3	11.765	-0.001	570124	929.2	3	12.555	0.002	1297105	1118.3
Aroclor-1260	4	12.168	0.000	297782	957.3	4	13.280	0.002	569572	1182.2
Aroclor-1260	5	12.280	0.001	123905	938.0	NS	---			----

Total Col1Ave (5 peaks): 937.1 Total Col2Ave (4 peaks): 1136.7 RPD = 19
Corrected Ave (4 peaks): 932.0 Corrected Ave (3 peaks): 1121.5 RPD = 18

CalAmt %D: -6.3 CalAmt %D: 13.7

Total PCB Area Col1 (5.962 - 13.830) = 7281233 Col1 Total PCB = 1.9 ppm*

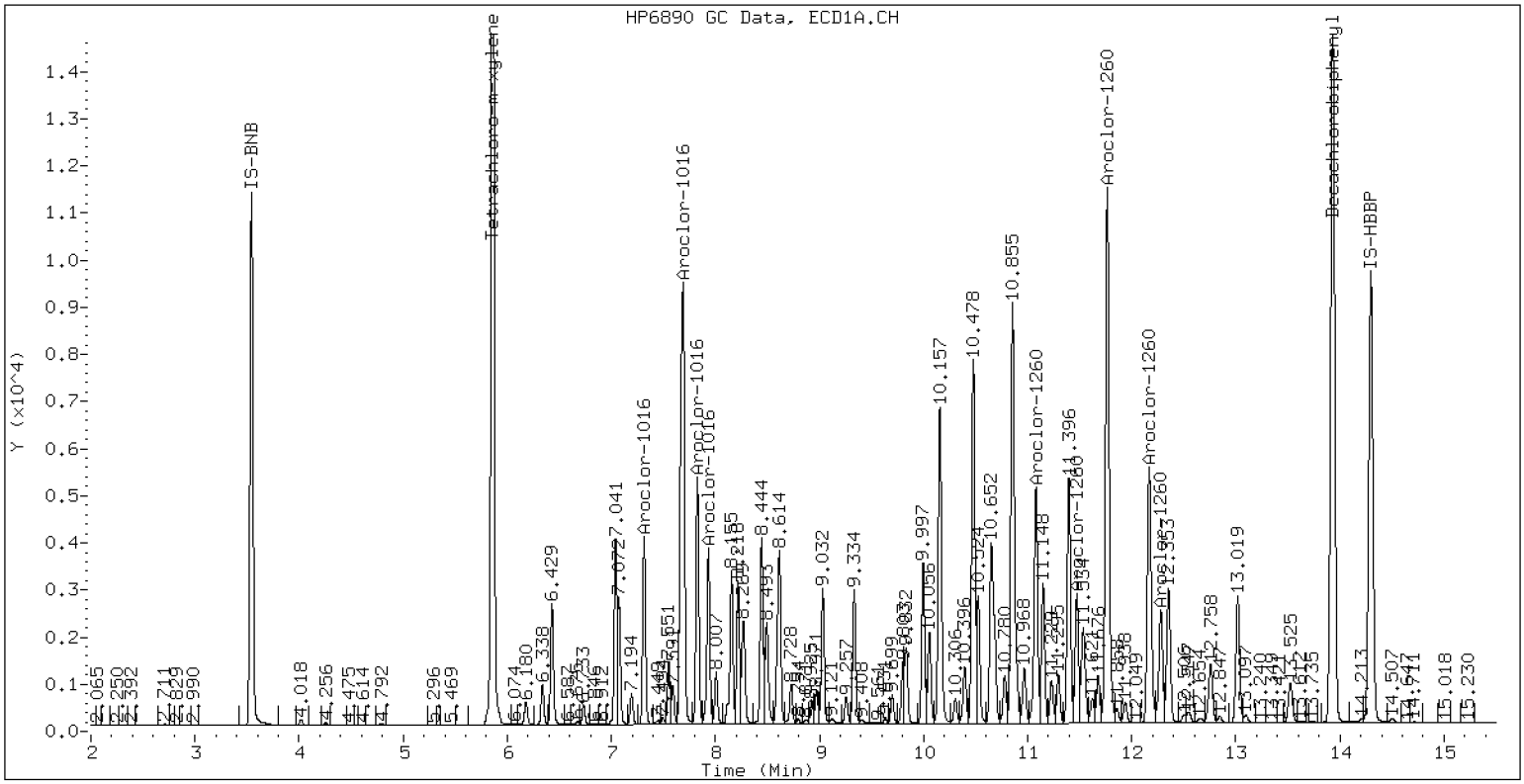
Total PCB Area Col2 (5.962 - 13.830) = 17863093 Col2 Total PCB = 2.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

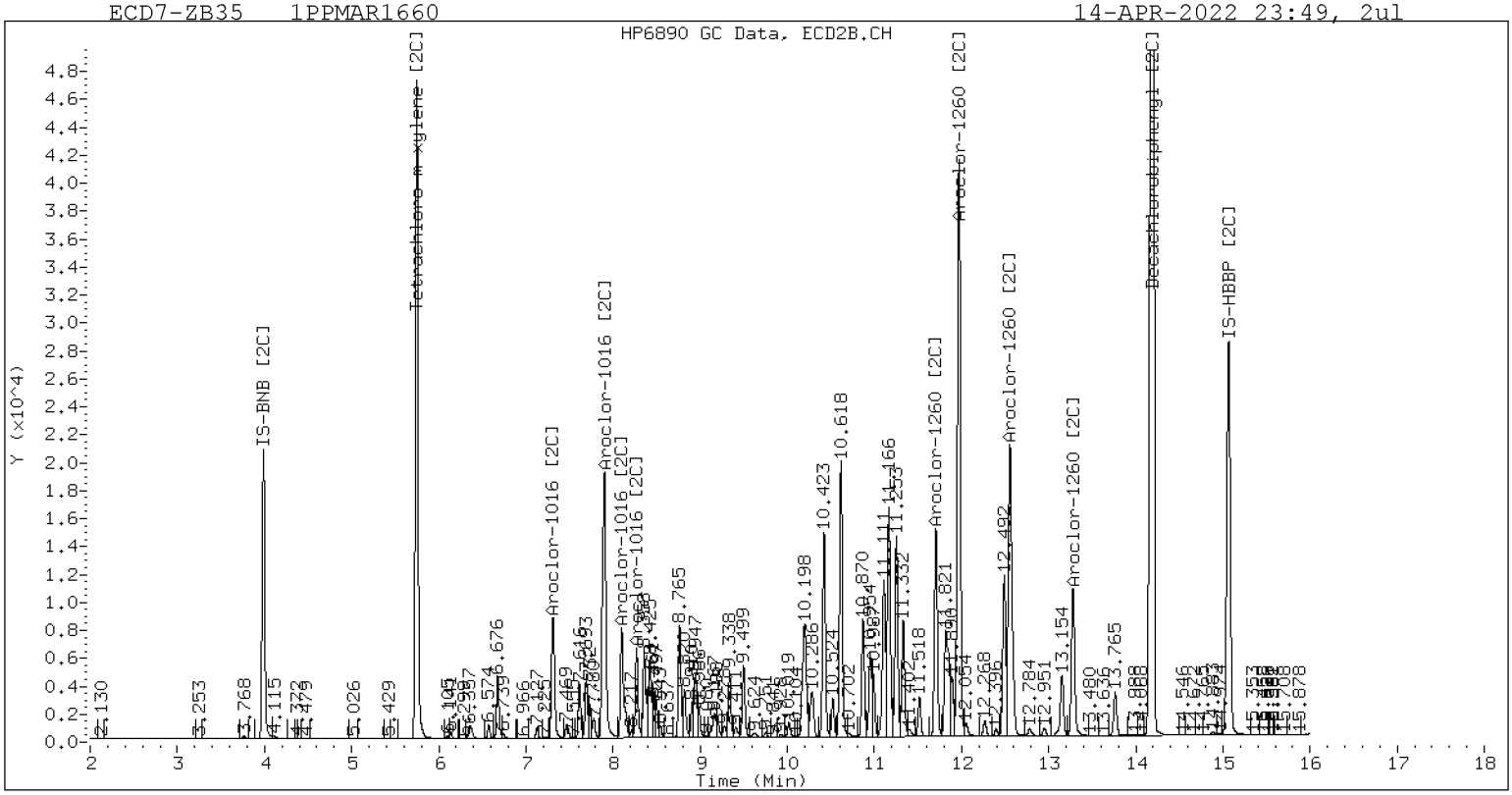
PCB Dual Column Chromatograms

ECD7-ZB5 1PPMAR1660 14-APR-2022 23:49, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1PPMAR1660 14-APR-2022 23:49, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142229ECD7.D
Data file 2: /220414.b/220414.b/04142229ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 15-APR-2022 00:10
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	104108	5.748	-0.000	183318	15.7	15.4	1.4	Tetrachloro-m-xylene
13.933	0.003	95576	14.180	-0.002	404301	15.8	15.1	4.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	494922	1.9
Hexabromobiphenyl	571136	584232	2.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	930816	1.7
Hexabromobiphenyl	1789656	1825322	2.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.316	0.001	18364	101.5	1	7.312	0.002	51658	102.5
Aroclor-1016	2	7.690	0.001	61998	100.4	2	7.905	0.001	114727	100.4
Aroclor-1016	3	7.829	0.002	24264	100.7	3	8.104	0.003	44146	99.2
Aroclor-1016	4	7.935	0.002	16561	100.2	4	8.276	0.004	25632	96.9

Total Col1Ave (4 peaks): 100.7 Total Col2Ave (4 peaks): 99.8 RPD = 1
Corrected Ave (3 peaks): 100.4 Corrected Ave (3 peaks): 98.9 RPD = 2

CalAmt %D: 0.7 CalAmt %D: -0.2

Aroclor-1260	1	11.082	0.003	27641	100.1	1	11.710	0.002	73397	97.2
Aroclor-1260	2	11.475	0.004	15042	100.9	2	11.972	0.001	190904	95.9
Aroclor-1260	3	11.768	0.002	76325	115.6	3	12.557	0.004	125642	95.1
Aroclor-1260	4	12.170	0.003	33284	99.4	4	13.282	0.004	54041	98.5
Aroclor-1260	5	12.282	0.003	14272	100.4	NS	---			----

Total Col1Ave (5 peaks): 103.3 Total Col2Ave (4 peaks): 96.7 RPD = 7
Corrected Ave (4 peaks): 100.2 Corrected Ave (3 peaks): 96.1 RPD = 4

CalAmt %D: 3.3 CalAmt %D: -3.3

Total PCB Area Col1 (5.962 - 13.830) = 891185 Col1 Total PCB = 0.2 ppm*

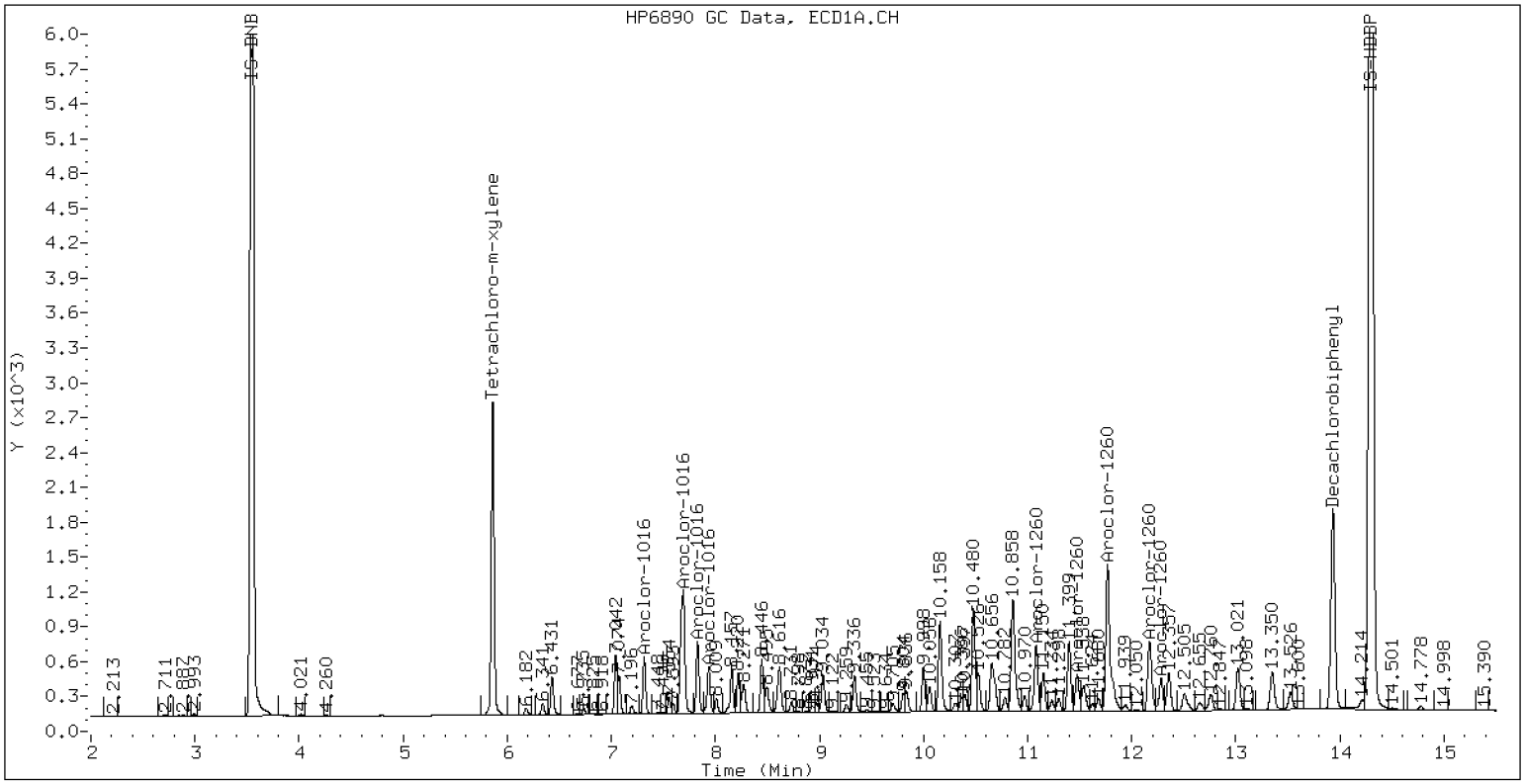
Total PCB Area Col2 (5.962 - 13.830) = 1843868 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

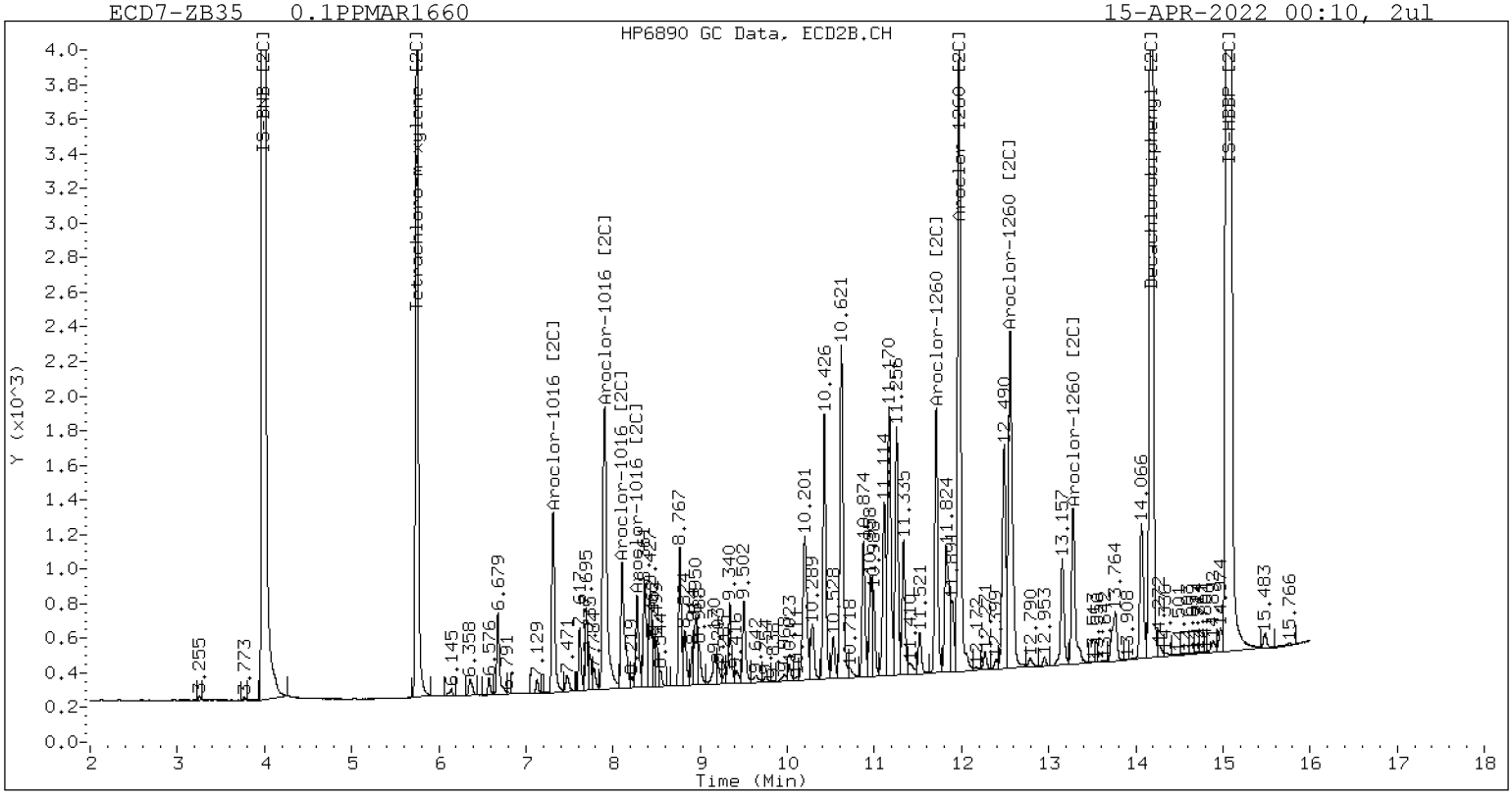
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 15-APR-2022 00:10, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 15-APR-2022 00:10, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142230ECD7.D
Data file 2: /220414.b/220414.b/04142230ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 15-APR-2022 00:32
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.001	515955	5.748	-0.001	954299	79.8	81.7	2.4	Tetrachloro-m-xylene
13.931	0.001	433964	14.183	0.001	2590193	74.1	101.0	30.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	481776	-0.8
Hexabromobiphenyl	571136	565169	-1.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	916289	0.1
Hexabromobiphenyl	1789656	1751698	-2.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	84046	477.2	1	7.311	0.000	244066	491.9
Aroclor-1016	2	7.689	0.000	291142	484.2	2	7.904	0.000	568927	505.8
Aroclor-1016	3	7.826	0.000	112316	479.0	3	8.101	0.000	222848	508.9
Aroclor-1016	4	7.933	0.000	79269	492.6	4	8.272	0.000	139713	536.7

Total Col1Ave (4 peaks): 483.2 Total Col2Ave (4 peaks): 510.8 RPD = 6
Corrected Ave (3 peaks): 480.1 Corrected Ave (3 peaks): 502.2 RPD = 4

CalAmt %D: -3.4 CalAmt %D: 2.2

Aroclor-1260	1	11.079	0.000	127998	479.1	1	11.707	0.000	374858	517.2
Aroclor-1260	2	11.471	0.000	68841	477.2	2	11.970	0.000	1000767	524.0
Aroclor-1260	3	11.766	0.000	304284	476.5	3	12.554	0.000	651404	514.0
Aroclor-1260	4	12.168	0.000	157965	487.8	4	13.278	0.000	286356	544.0
Aroclor-1260	5	12.279	0.000	66254	481.9	NS	---			----

Total Col1Ave (5 peaks): 480.5 Total Col2Ave (4 peaks): 524.8 RPD = 9
Corrected Ave (4 peaks): 478.6 Corrected Ave (3 peaks): 518.4 RPD = 8

CalAmt %D: -3.9 CalAmt %D: 5.0

Total PCB Area Col1 (5.962 - 13.830) = 3897562 Col1 Total PCB = 1.0 ppm*

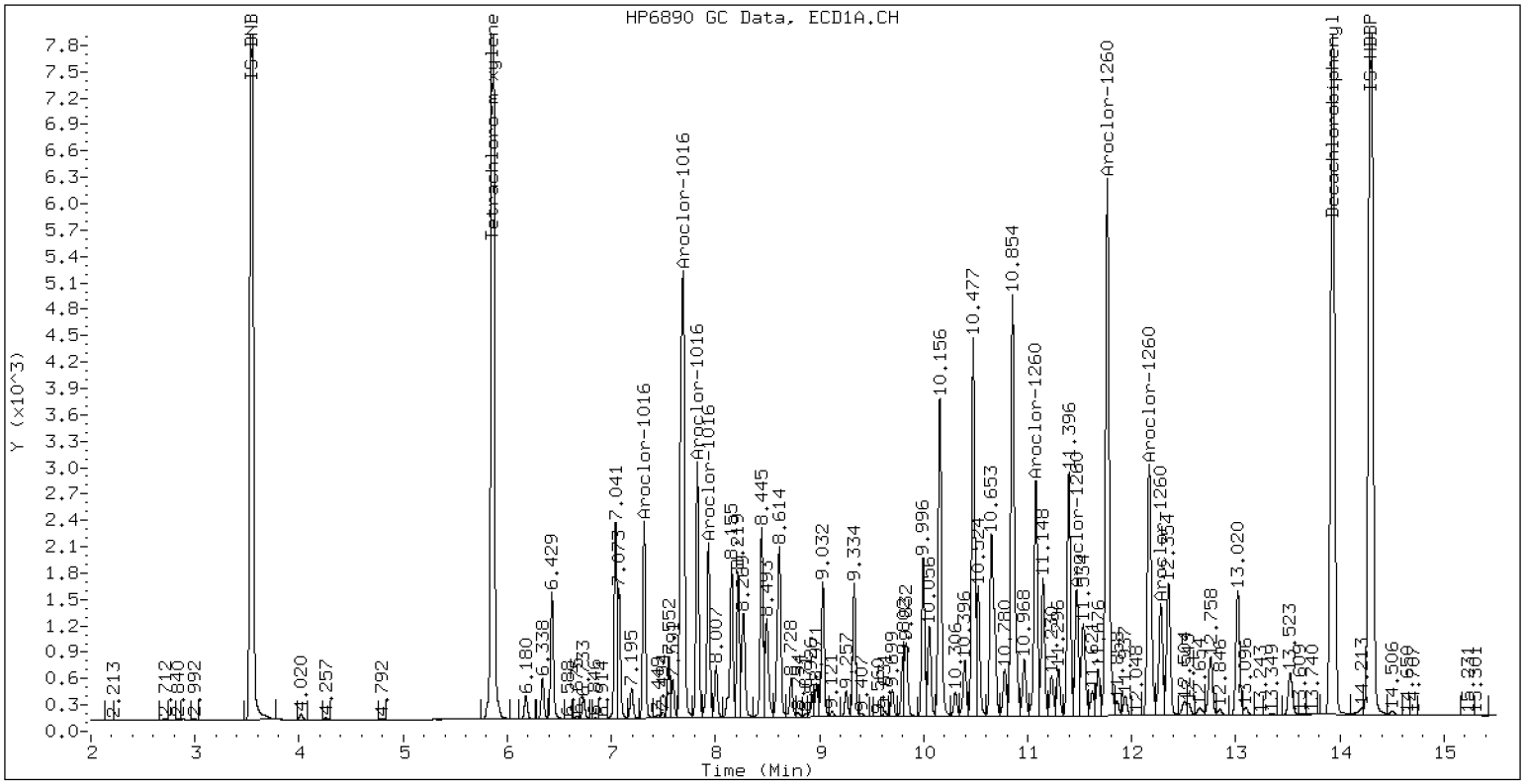
Total PCB Area Col2 (5.962 - 13.830) = 9188298 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

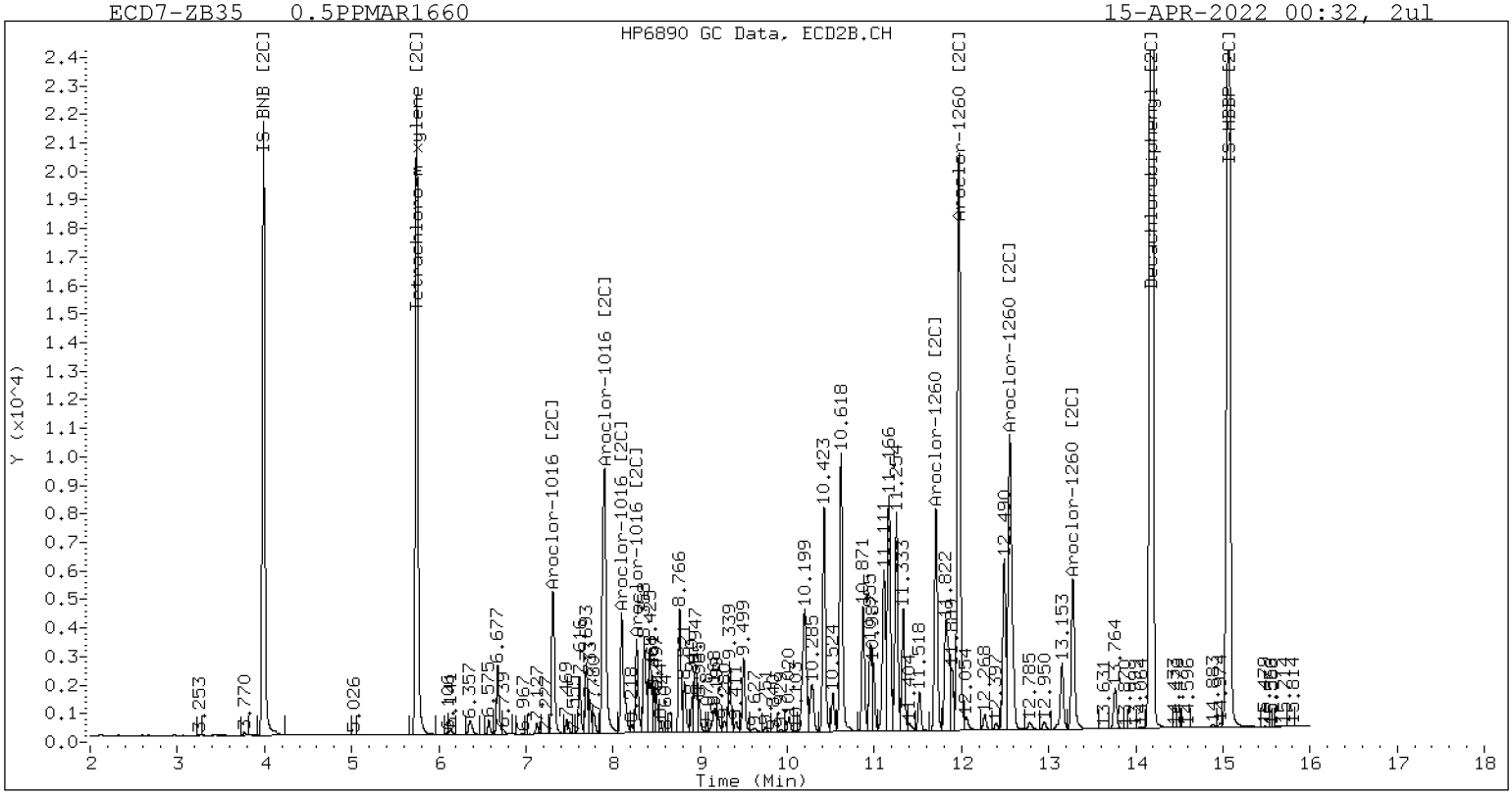
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 15-APR-2022 00:32, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 15-APR-2022 00:32, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142231ECD7.D
Data file 2: /220414.b/220414.b/04142231ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242
Client ID:
Injection Date: 15-APR-2022 00:53
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	254000	5.747	-0.002	453544	38.9	38.8	0.2	Tetrachloro-m-xylene
13.931	0.000	220137	14.181	-0.001	1128070	36.7	42.5	14.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	487084	0.2
Hexabromobiphenyl	571136	578524	1.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	917804	0.3
Hexabromobiphenyl	1789656	1813298	1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.315	0.000	33819	250.0	1	7.310	0.000	96348	250.0
Aroclor-1242	2	7.689	0.000	112839	250.0	2	7.903	0.000	213676	250.0
Aroclor-1242	3	9.026	0.000	43949	250.0	3	9.283	0.000	65484	250.0
Aroclor-1242	4	9.258	0.000	37140	250.0	4	9.628	0.000	78965	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.962 - 13.830) = 793220 Col1 Total PCB = 0.2 ppm*

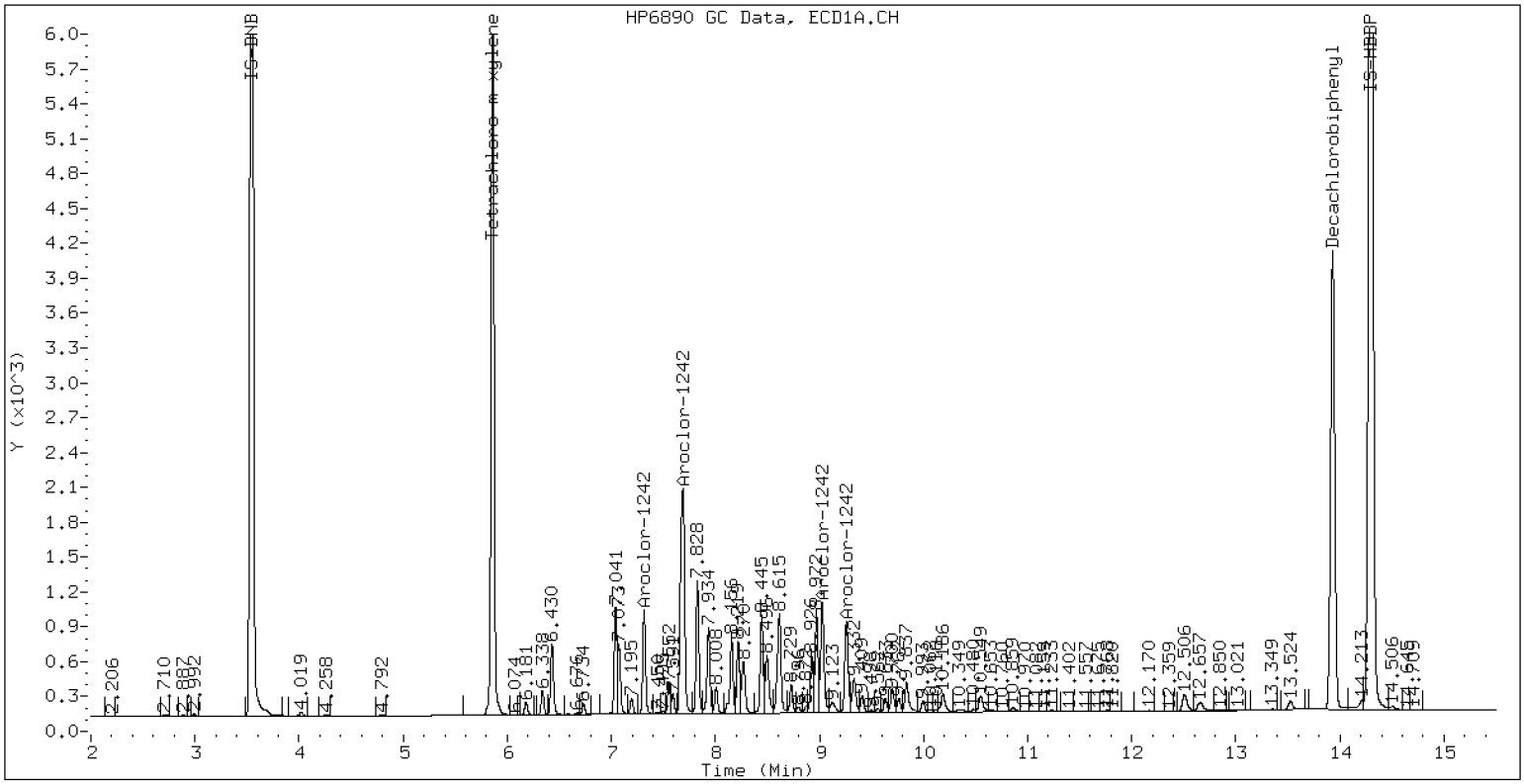
Total PCB Area Col2 (5.962 - 13.830) = 1409454 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

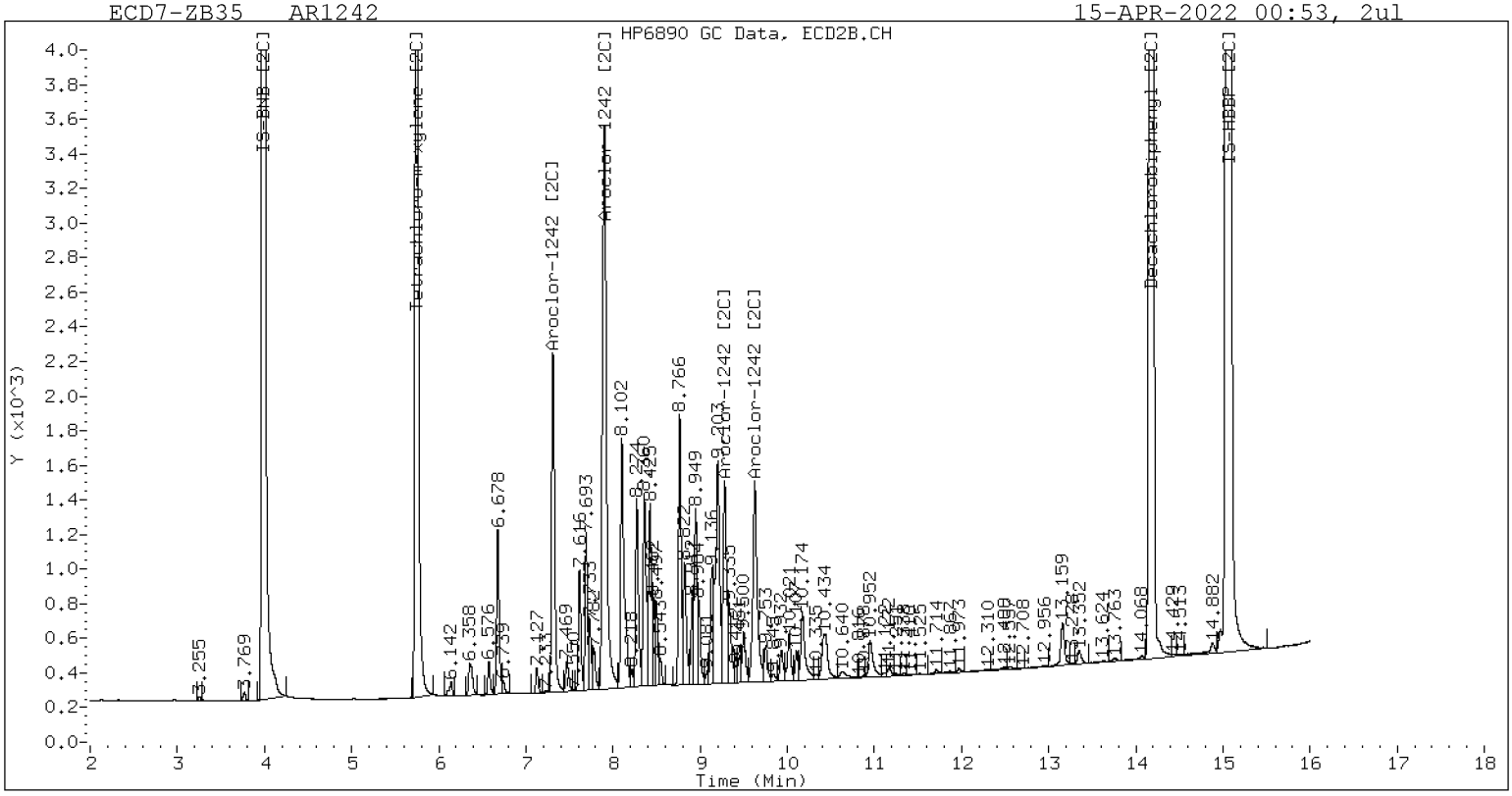
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242 15-APR-2022 00:53, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242 15-APR-2022 00:53, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142232ECD7.D
Data file 2: /220414.b/220414.b/04142232ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248
Client ID:
Injection Date: 15-APR-2022 01:15
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.001	258782	5.748	-0.000	468714	39.8	40.0	0.4	Tetrachloro-m-xylene
13.931	0.001	227075	14.181	-0.000	1141457	38.4	43.8	13.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	483876	-0.4
Hexabromobiphenyl	571136	570677	-0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	918560	0.4
Hexabromobiphenyl	1789656	1779360	-0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
	ZB5 Col					ZB35 Col				
Aroclor-1248	1	8.444	0.000	55483	250.0	1	8.359	0.000	96789	250.0
Aroclor-1248	2	8.614	0.000	63915	250.0	2	8.766	0.000	108747	250.0
Aroclor-1248	3	9.027	0.000	81238	250.0	3	9.202	0.000	158806	250.0
Aroclor-1248	4	9.258	0.000	62291	250.0	4	9.625	0.000	150495	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.962 - 13.830) = 995786 Col1 Total PCB = 0.2 ppm*

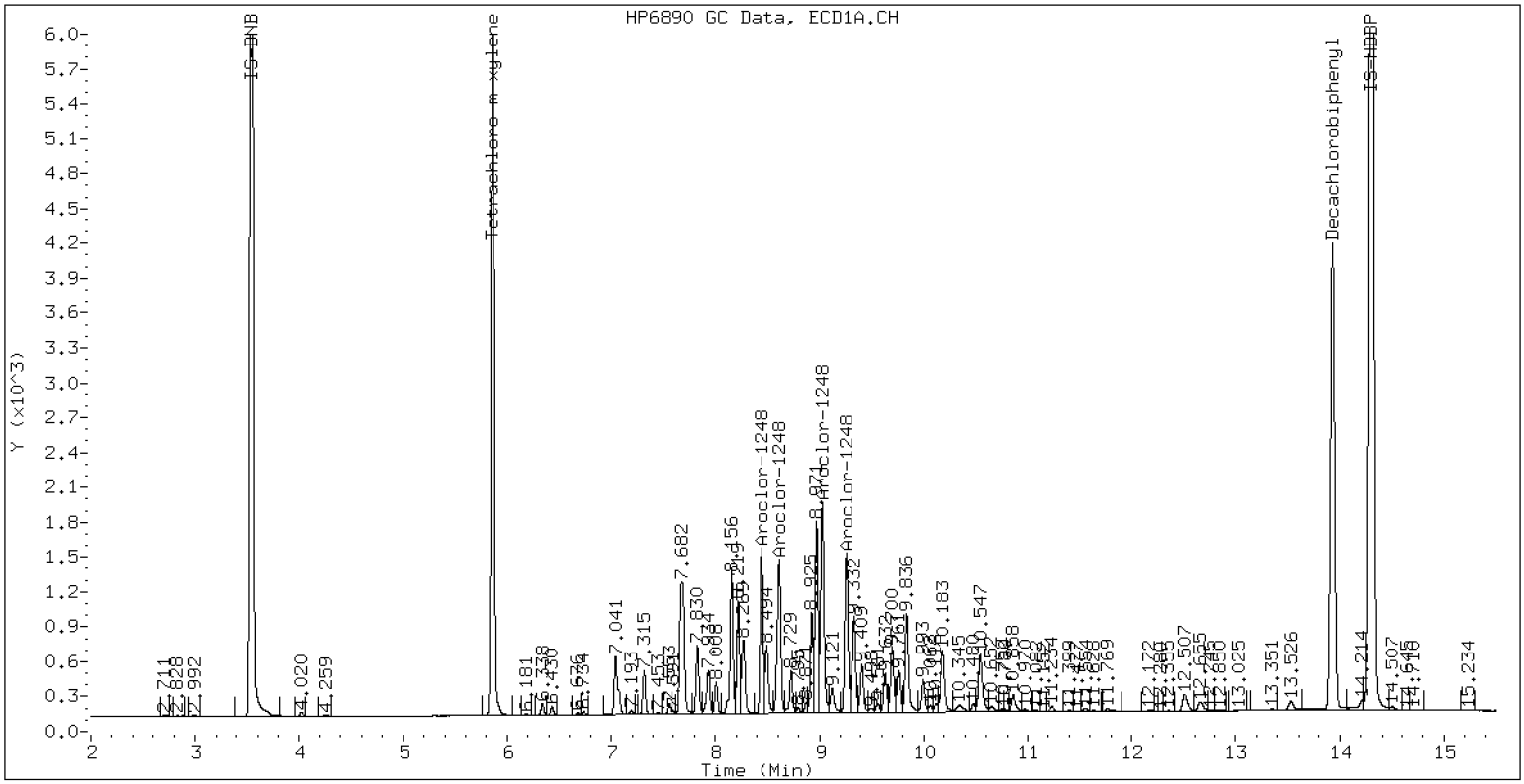
Total PCB Area Col2 (5.962 - 13.830) = 1870192 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

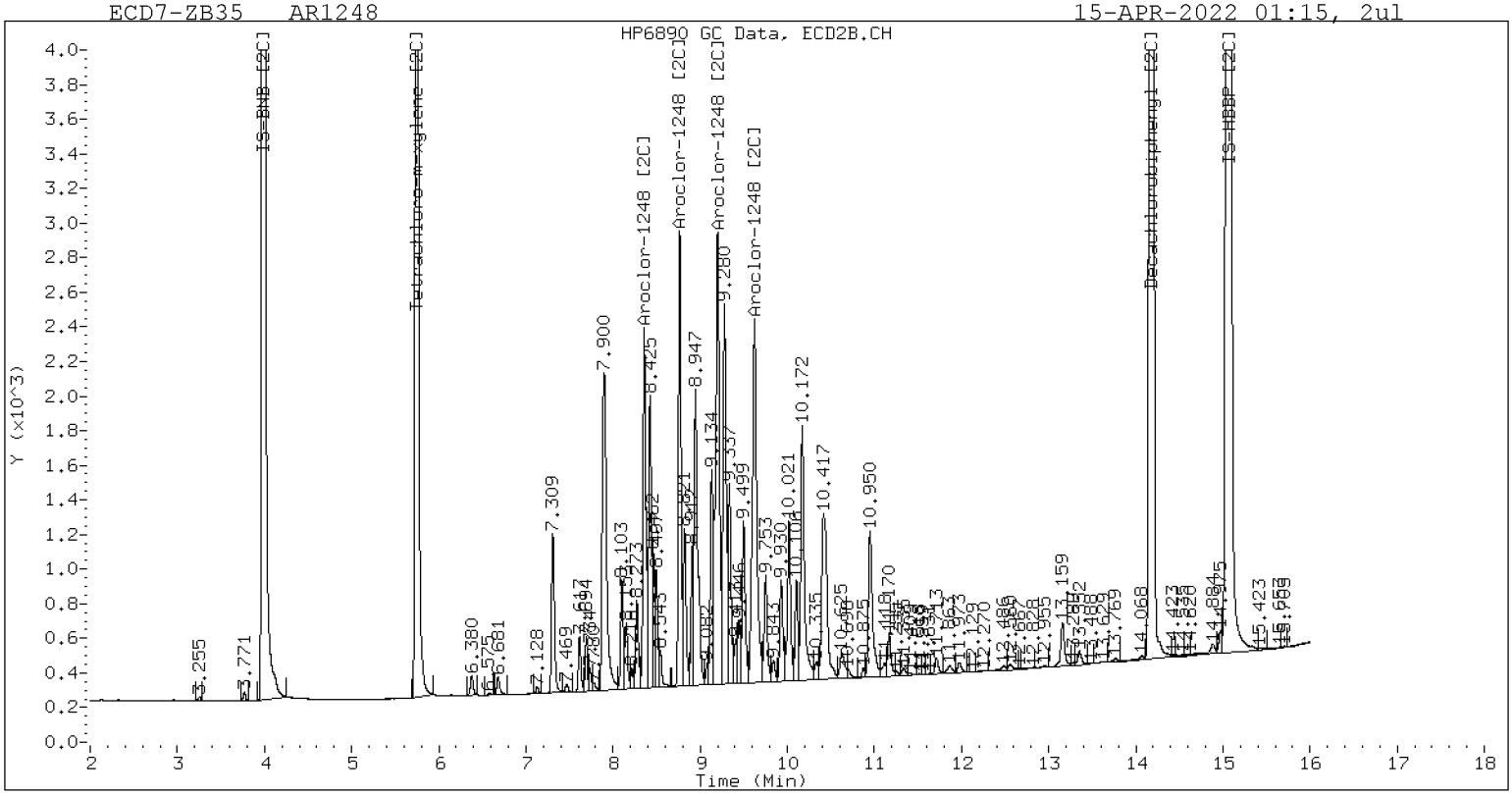
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248 15-APR-2022 01:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248 15-APR-2022 01:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142233ECD7.D
Data file 2: /220414.b/220414.b/04142233ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254
Client ID:
Injection Date: 15-APR-2022 01:37
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.000	258571	5.749	0.001	468488	39.1	39.5	0.9	Tetrachloro-m-xylene
13.934	0.003	223783	14.182	-0.000	1150679	37.2	43.4	15.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	492128	1.3
Hexabromobiphenyl	571136	579764	1.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	930464	1.7
Hexabromobiphenyl	1789656	1811282	1.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.334	0.000	97754	250.0	1	9.500	0.000	154531	250.0
Aroclor-1254	2	9.409	0.000	33821	250.0	2	9.929	0.000	59121	250.0
Aroclor-1254	3	9.700	0.000	62737	250.0	3	10.021	0.000	123093	250.0
Aroclor-1254	4	9.835	0.000	118230	250.0	4	10.172	0.000	273111	250.0
Aroclor-1254	5	10.180	0.000	126198	250.0	5	10.619	0.000	124958	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0
Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.962 - 13.830) = 1216853 Col1 Total PCB = 0.3 ppm*

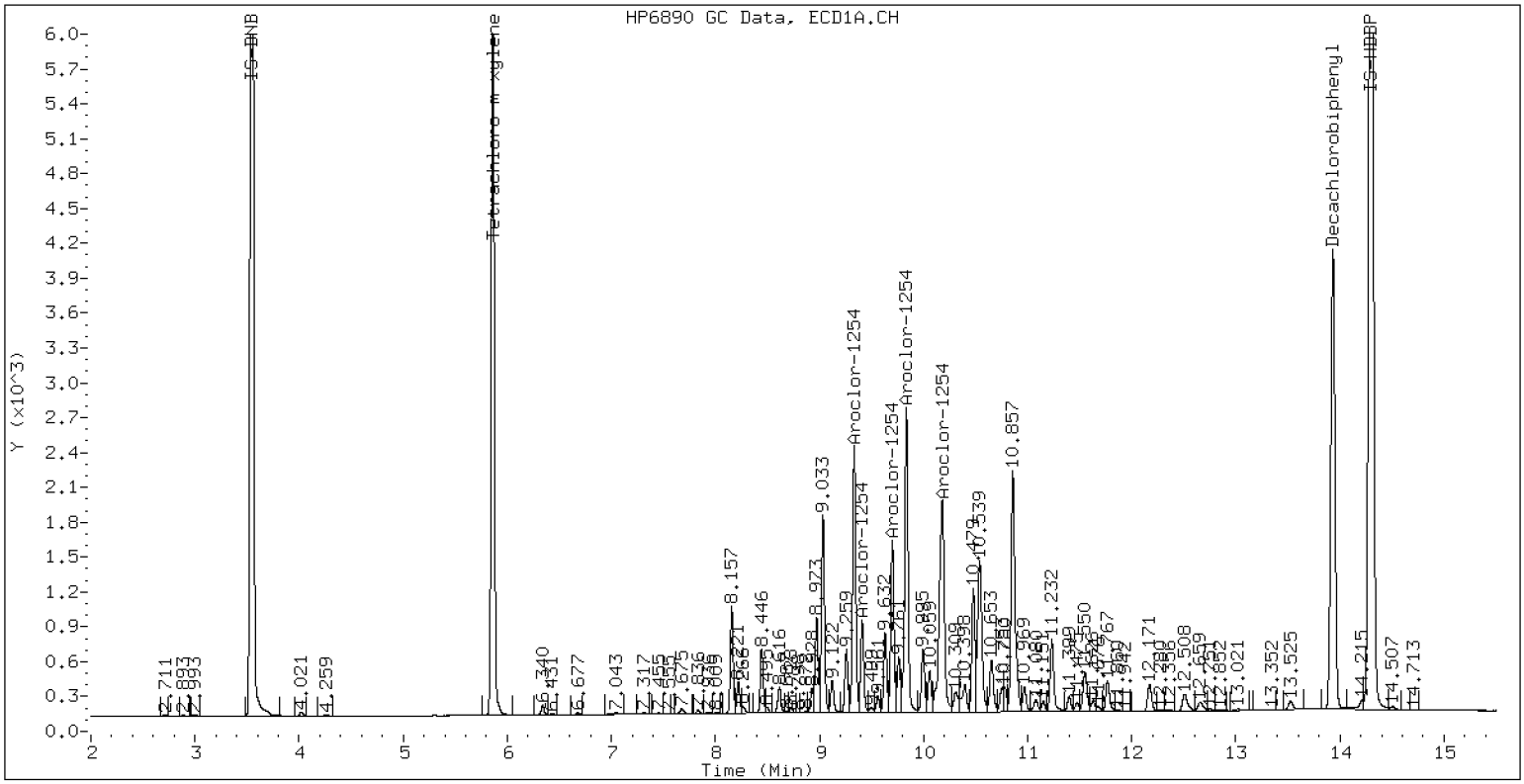
Total PCB Area Col2 (5.962 - 13.830) = 2496180 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

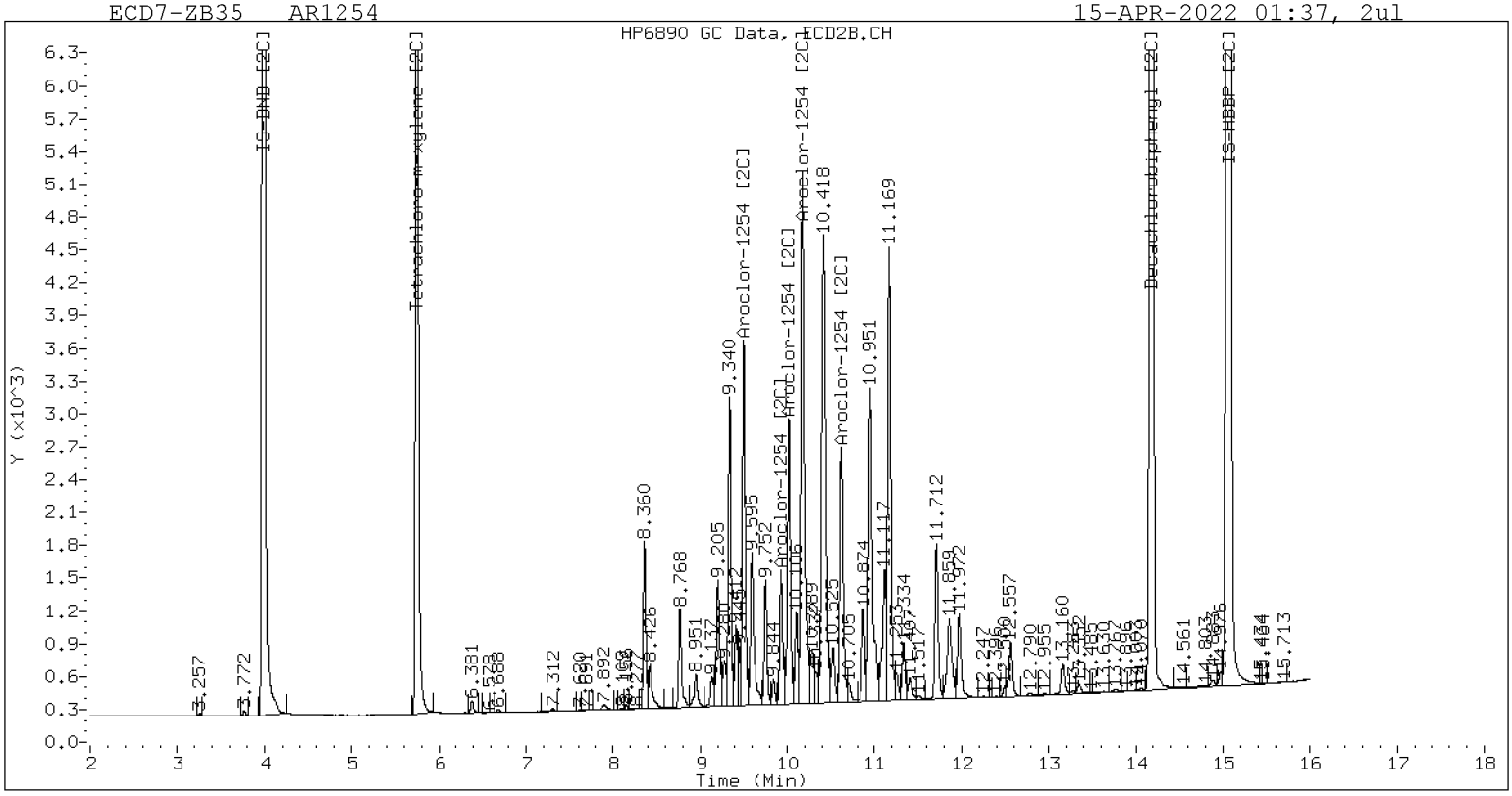
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254 15-APR-2022 01:37, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254 15-APR-2022 01:37, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142234ECD7.D
Data file 2: /220414.b/220414.b/04142234ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162
Client ID:
Injection Date: 15-APR-2022 01:58
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.002	265419	5.747	-0.002	469405	40.5	40.4	0.2	Tetrachloro-m-xylene
13.931	0.000	224081	14.181	-0.001	1145806	37.7	43.8	15.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	488874	0.6
Hexabromobiphenyl	571136	573480	0.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	912427	-0.3
Hexabromobiphenyl	1789656	1788314	-0.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1221	1	4.792	0.000	9732	250.0	1	5.025	0.000	14190	250.0
Aroclor-1221	2	6.182	0.000	16834	250.0	2	6.354	0.000	33733	250.0
Aroclor-1221	3	6.430	0.000	39674	250.0	3	6.678	0.000	61047	250.0

Total Col1Ave (3 peaks): 250.0 Total Col2Ave (3 peaks): 250.0 RPD = 0
Corrected Ave: < 3 Peaks Corrected Ave: < 3 Peaks

Aroclor-1262	1	10.856	0.000	62157	250.0	1	11.254	0.000	294581	250.0
Aroclor-1262	2	12.281	0.000	80163	250.0	2	11.707	0.000	251274	250.0
Aroclor-1262	3	12.354	0.000	82262	250.0	3	12.490	0.000	290146	250.0
Aroclor-1262	4	13.020	0.000	68360	250.0	4	13.279	0.000	259290	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0
Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.962 - 13.830) = 1526975 Col1 Total PCB = 0.4 ppm*

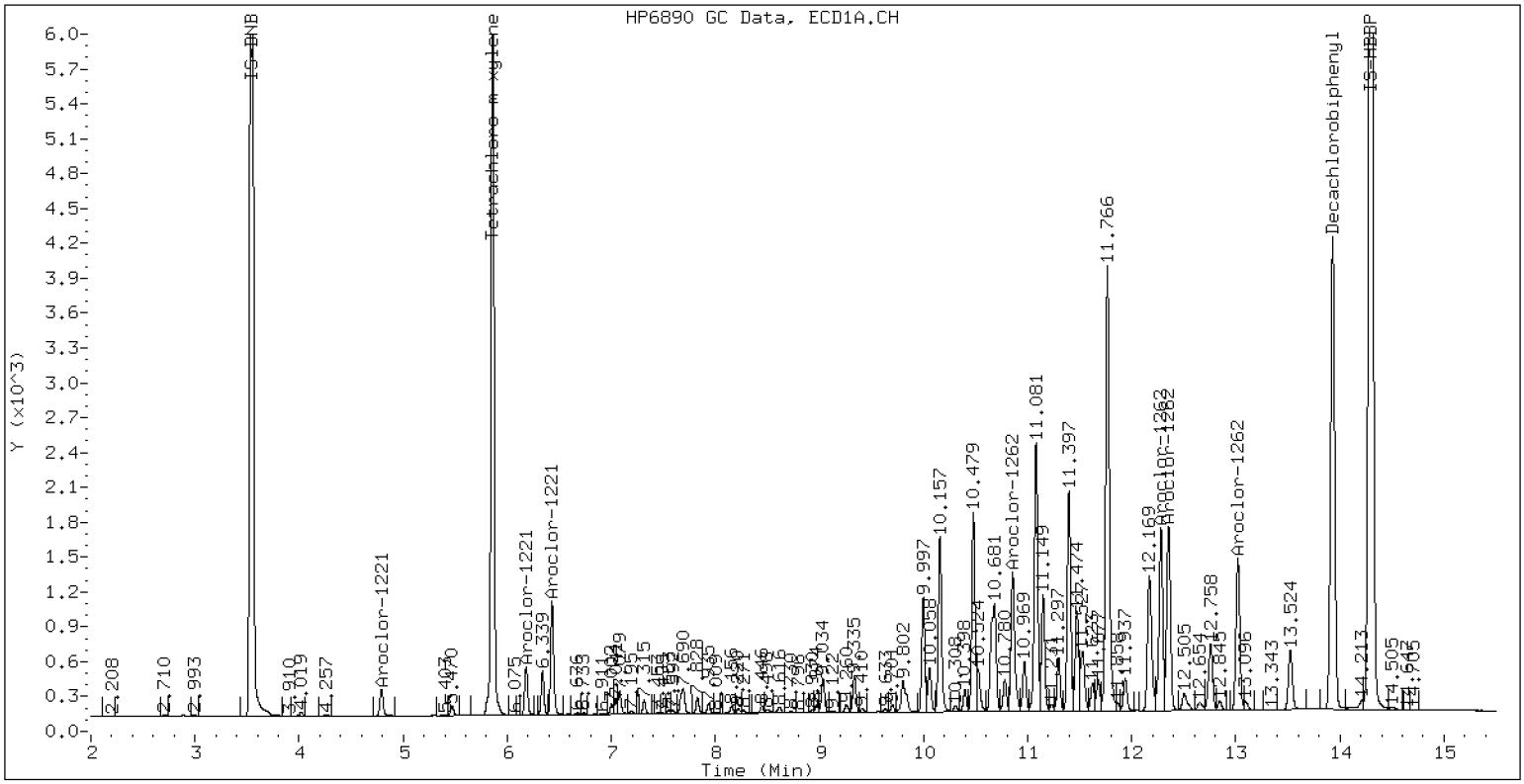
Total PCB Area Col2 (5.962 - 13.830) = 3965433 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

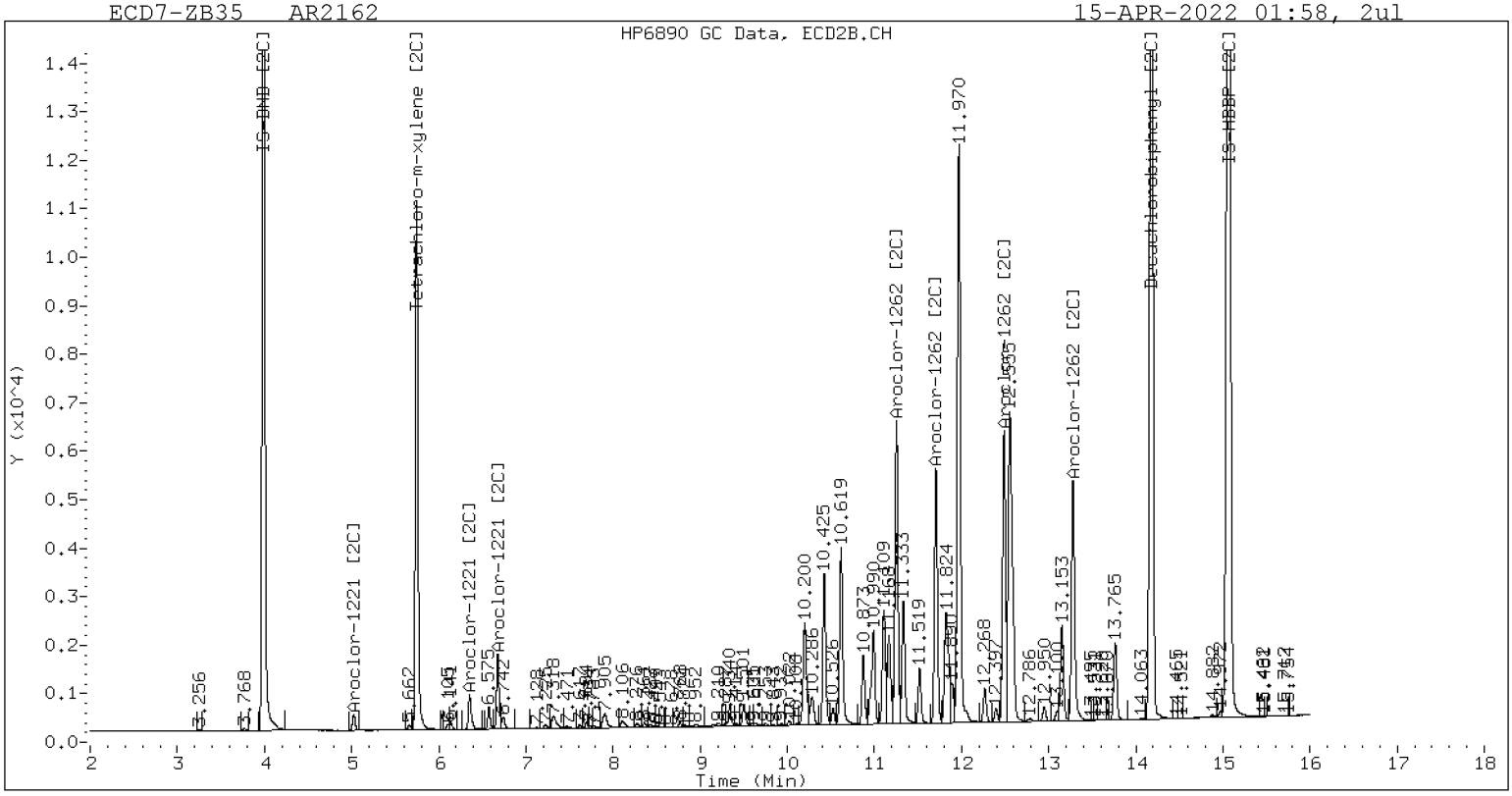
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162 15-APR-2022 01:58, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162 15-APR-2022 01:58, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142235ECD7.D
Data file 2: /220414.b/220414.b/04142235ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268
Client ID:
Injection Date: 15-APR-2022 02:20
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.862	0.000	262891	5.748	0.000	464779	40.0	39.8	0.4	Tetrachloro-m-xylene
13.930	0.000	315050	14.182	0.000	1832229	53.0	69.8	27.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	489626	0.8
Hexabromobiphenyl	571136	573711	0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	915005	0.0
Hexabromobiphenyl	1789656	1794771	0.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT (ZB5 Col)	Shift	Area	Amount	Peak#	RT (ZB35 Col)	Shift	Area	Amount
Aroclor-1232	1	4.795	0.000	5788	250.0	1	5.029	0.000	8577	250.0
Aroclor-1232	2	6.184	0.000	11248	250.0	2	7.312	0.000	52972	250.0
Aroclor-1232	3	7.690	0.000	59476	250.0	3	7.905	0.000	108817	250.0
Aroclor-1232	4	8.616	0.000	20760	250.0	4	8.768	0.000	30465	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.281	0.000	218916	250.0	1	12.488	0.000	770236	250.0
Aroclor-1268	2	12.352	0.000	201450	250.0	2	12.555	0.000	820966	250.0
Aroclor-1268	3	12.737	0.000	171510	250.0	3	12.951	0.000	722041	250.0
Aroclor-1268	4	13.525	0.000	512246	250.0	4	13.769	0.000	2846756	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.962 - 13.830) = 1834236 Col1 Total PCB = 0.5 ppm*

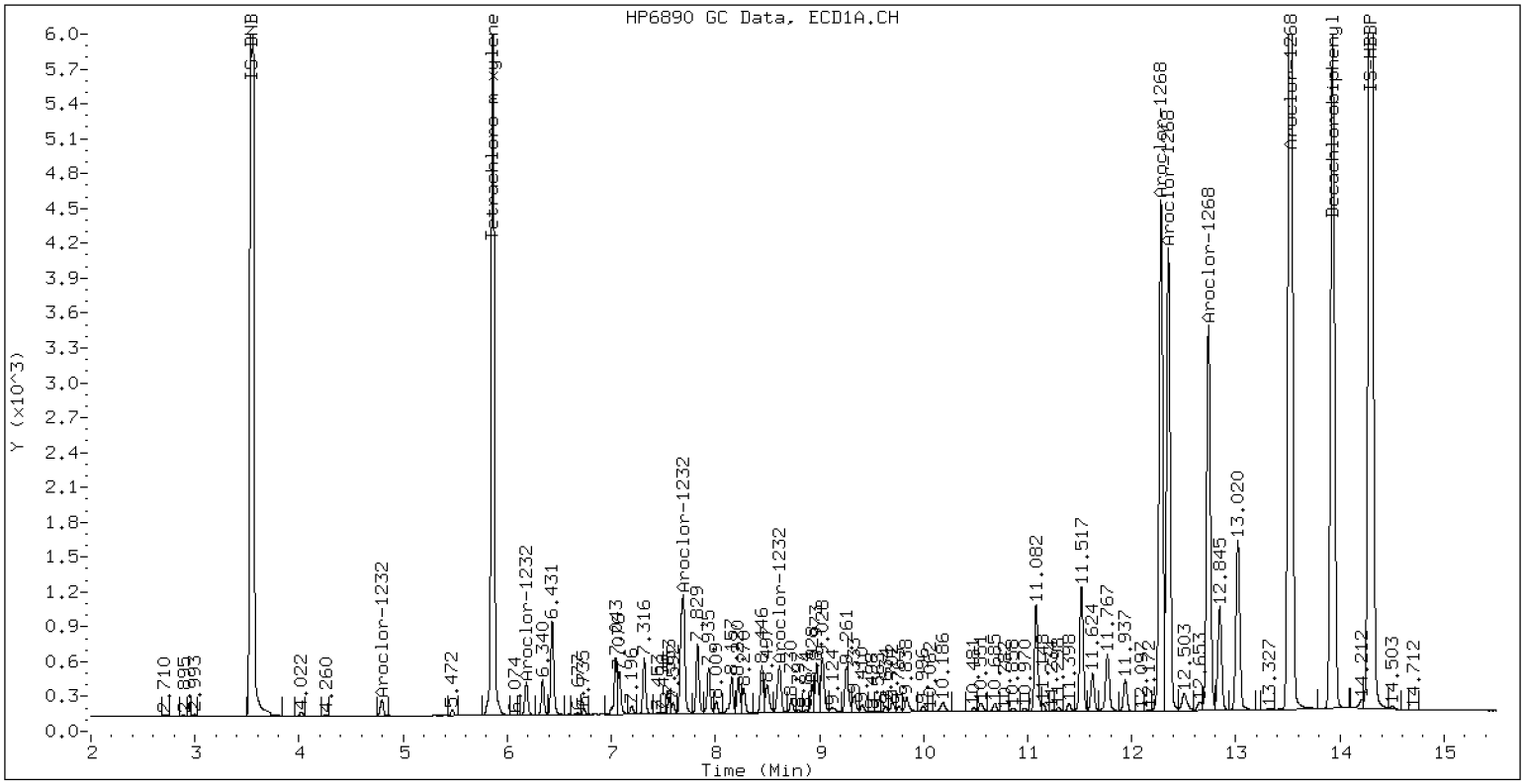
Total PCB Area Col2 (5.962 - 13.830) = 6823311 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

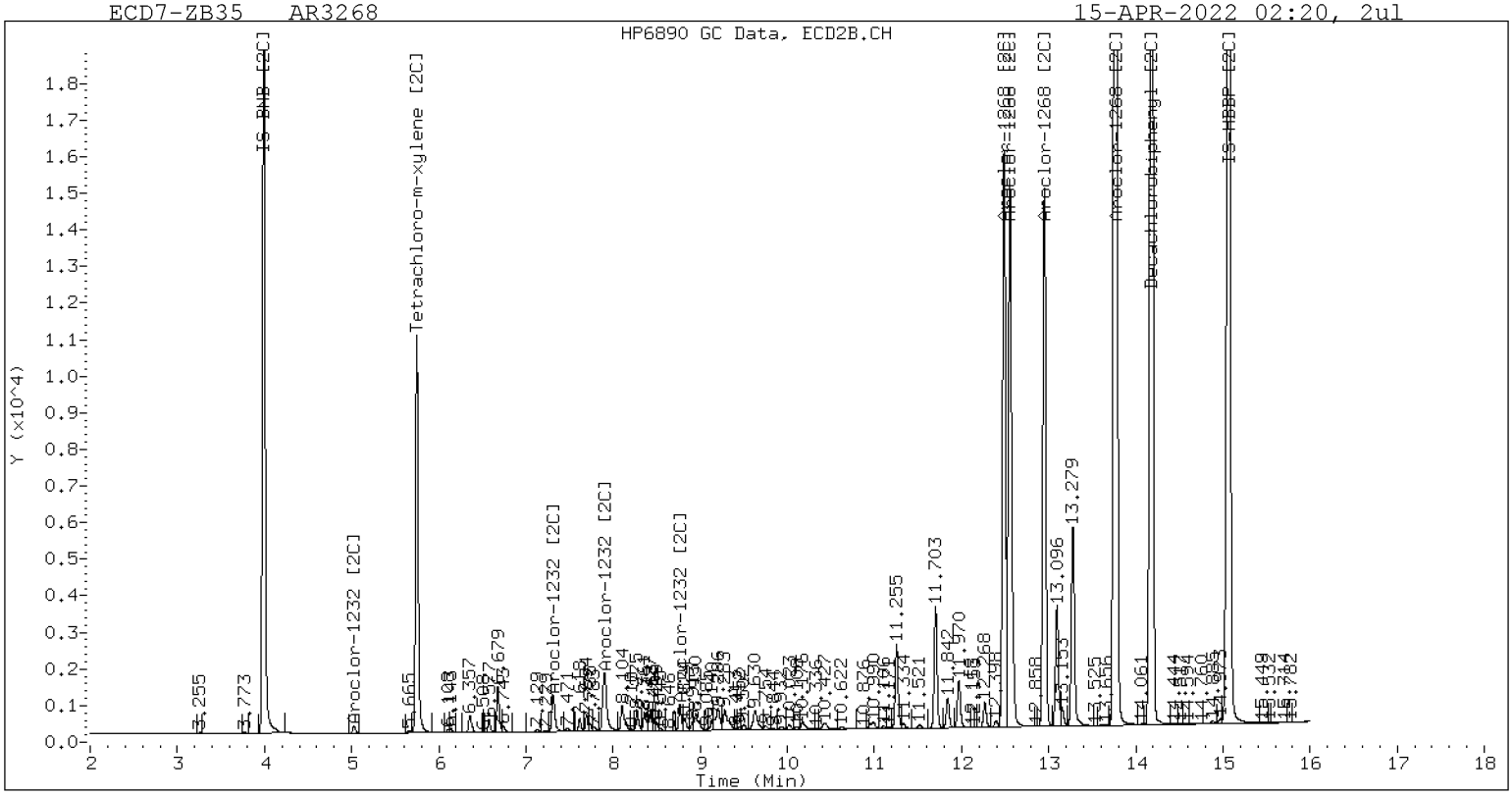
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268 15-APR-2022 02:20, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268 15-APR-2022 02:20, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142236ECD7.D
Data file 2: /220414.b/220414.b/04142236ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 15-APR-2022 02:41
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.000	252816	5.748	-0.000	451594	41.6	40.4	2.9	Tetrachloro-m-xylene
13.931	0.000	219286	14.180	-0.002	1114764	41.0	47.6	14.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	452418	-6.9
Hexabromobiphenyl	571136	515306	-9.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	876156	-4.2
Hexabromobiphenyl	1789656	1601839	-10.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.316	0.001	39155	236.8	1	7.311	0.001	112706	237.6
Aroclor-1016	2	7.689	0.000	132942	235.4	2	7.903	-0.000	252843	235.1
Aroclor-1016	3	7.828	0.002	51772	235.1	3	8.102	0.001	98249	234.6
Aroclor-1016	4	7.934	0.001	35787	236.8	4	8.272	0.001	59627	239.5
Total Col1Ave (4 peaks):					236.0	Total Col2Ave (4 peaks):				236.7 RPD = 0
Corrected Ave (3 peaks):					235.8	Corrected Ave (3 peaks):				235.7 RPD = 0
Aroclor-1221	1	4.793	0.002	281	7.8	1	5.026	0.001	383	7.0
Aroclor-1221	2	6.181	-0.001	5320	85.4	2	6.359	0.004	13262	102.4
Aroclor-1221	3	6.430	0.000	28064	191.1	3	6.678	0.001	46208	197.1
Total Col1Ave (3 peaks):					94.8	Total Col2Ave (3 peaks):				102.1 RPD = 8
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.793	-0.002	281	13.1	1	5.026	-0.003	383	11.7
Aroclor-1232	2	6.181	-0.003	5320	128.0	2	7.311	-0.001	112706	555.5
Aroclor-1232	3	7.689	-0.001	132942	604.8	3	7.903	-0.002	252843	606.6
Aroclor-1232	4	8.615	-0.001	48435	631.2	4	8.765	-0.002	77662	665.6
Total Col1Ave (4 peaks):					344.3	Total Col2Ave (4 peaks):				459.8 RPD = 29
Corrected Ave (3 peaks):					248.6	Corrected Ave (3 peaks):				391.3 RPD = 45*
Aroclor-1242	1	7.316	0.001	39155	311.6	1	7.311	0.001	112706	306.3
Aroclor-1242	2	7.689	0.001	132942	317.1	2	7.903	0.000	252843	309.9
Aroclor-1242	3	9.032	0.006	29784	182.4	3	9.279	-0.004	7937	31.7
Aroclor-1242	4	9.258	-0.001	4156	30.1	4	9.627	-0.001	3306	11.0
Total Col1Ave (4 peaks):					210.3	Total Col2Ave (4 peaks):				164.7 RPD = 24
Corrected Ave (3 peaks):					174.7	Corrected Ave (3 peaks):				116.4 RPD = 40*
Aroclor-1248	1	8.444	-0.000	39715	191.4	1	8.358	-0.000	69011	186.9
Aroclor-1248	2	8.615	0.001	48435	202.6	2	8.765	-0.000	77662	187.2
Aroclor-1248	3	9.032	0.005	29784	98.0	3	9.167	-0.034	38251	63.1
Aroclor-1248	4	9.258	-0.000	4156	17.8	4	9.627	0.003	3306	5.8
Total Col1Ave (4 peaks):					127.5	Total Col2Ave (4 peaks):				110.7 RPD = 14
Corrected Ave (3 peaks):					102.4	Corrected Ave (3 peaks):				85.3 RPD = 18
Aroclor-1254	1	9.334	0.001	26649	74.1	1	9.500	-0.001	48404	83.2
Aroclor-1254	2	9.409	-0.001	503	4.0	2	9.932	0.002	760	3.4
Aroclor-1254	3	9.700	-0.000	3727	16.2	3	10.021	0.001	6185	13.3
Aroclor-1254	4	9.832	-0.003	11828	27.2	4	10.199	0.027	136275	132.5
Aroclor-1254	5	10.156	-0.023	86687	186.8	5	10.618	-0.001	243552	517.5
Total Col1Ave (5 peaks):					61.7	Total Col2Ave (5 peaks):				150.0 RPD = 83*
Corrected Ave (4 peaks):					30.4	Corrected Ave (4 peaks):				58.1 RPD = 63*
Aroclor-1260	1	11.080	0.001	78017	320.3	1	11.707	-0.001	209861	316.6
Aroclor-1260	2	11.473	0.002	40713	309.5	2	11.969	-0.001	556382	318.6
Aroclor-1260	3	11.766	0.000	181742	312.1	3	12.555	0.001	369030	318.4
Aroclor-1260	4	12.168	0.001	89051	301.6	4	13.280	0.002	171134	355.5
Aroclor-1260	5	12.280	0.002	40190	320.6	NS	---			----
Total Col1Ave (5 peaks):					312.8	Total Col2Ave (4 peaks):				327.3 RPD = 5
Corrected Ave (4 peaks):					310.9	Corrected Ave (3 peaks):				317.9 RPD = 2
Aroclor-1262	1	10.855	-0.000	119501	534.9	1	11.253	-0.001	206140	195.3
Aroclor-1262	2	12.280	-0.001	40190	139.5	2	11.707	0.000	209861	233.1
Aroclor-1262	3	12.354	-0.000	48033	162.5	3	12.490	0.000	159577	153.5
Aroclor-1262	4	13.020	-0.000	45464	185.0	4	13.280	0.000	171134	184.2
Total Col1Ave (4 peaks):					255.5	Total Col2Ave (4 peaks):				191.5 RPD = 29
Corrected Ave (3 peaks):					162.3	Corrected Ave (3 peaks):				177.7 RPD = 9
Aroclor-1268	1	12.280	-0.001	40190	51.1	1	12.490	0.001	159577	58.0
Aroclor-1268	2	12.354	0.002	48033	66.4	2	12.555	-0.000	369030	125.9
Aroclor-1268	3	12.759	0.021	24159	39.2	3	12.951	-0.001	5355	2.1
Aroclor-1268	4	13.523	-0.001	22467	12.2	4	13.763	-0.007	30550	3.0
Total Col1Ave (4 peaks):					42.2	Total Col2Ave (4 peaks):				47.3 RPD = 11

Corrected Ave (3 peaks): 34.2 Corrected Ave (3 peaks): 21.0 RPD = 48*

Total PCB Area Col1 (5.962 - 13.830) = 2067740 Col1 Total PCB = 0.6 ppm*

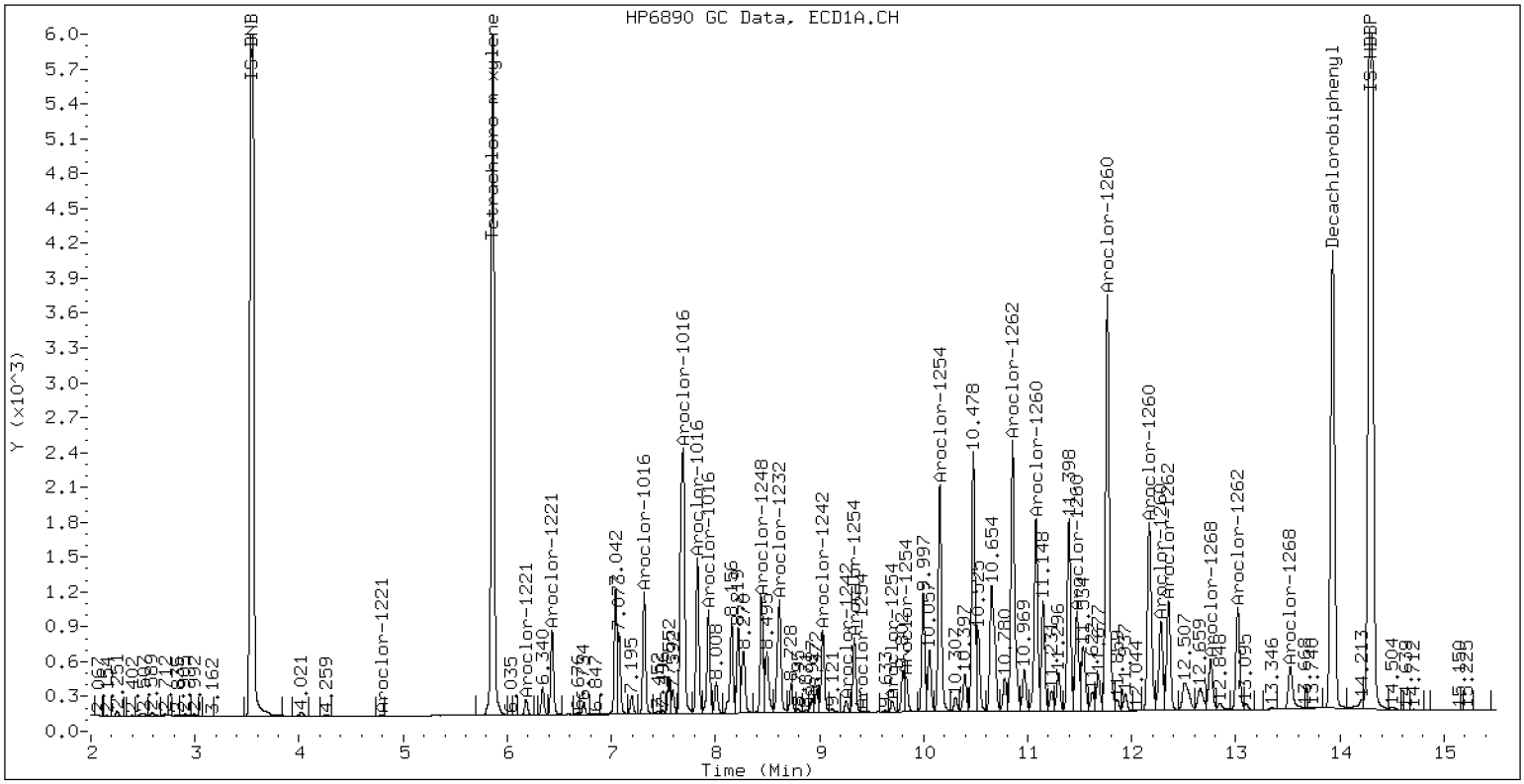
Total PCB Area Col2 (5.962 - 13.830) = 4680573 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

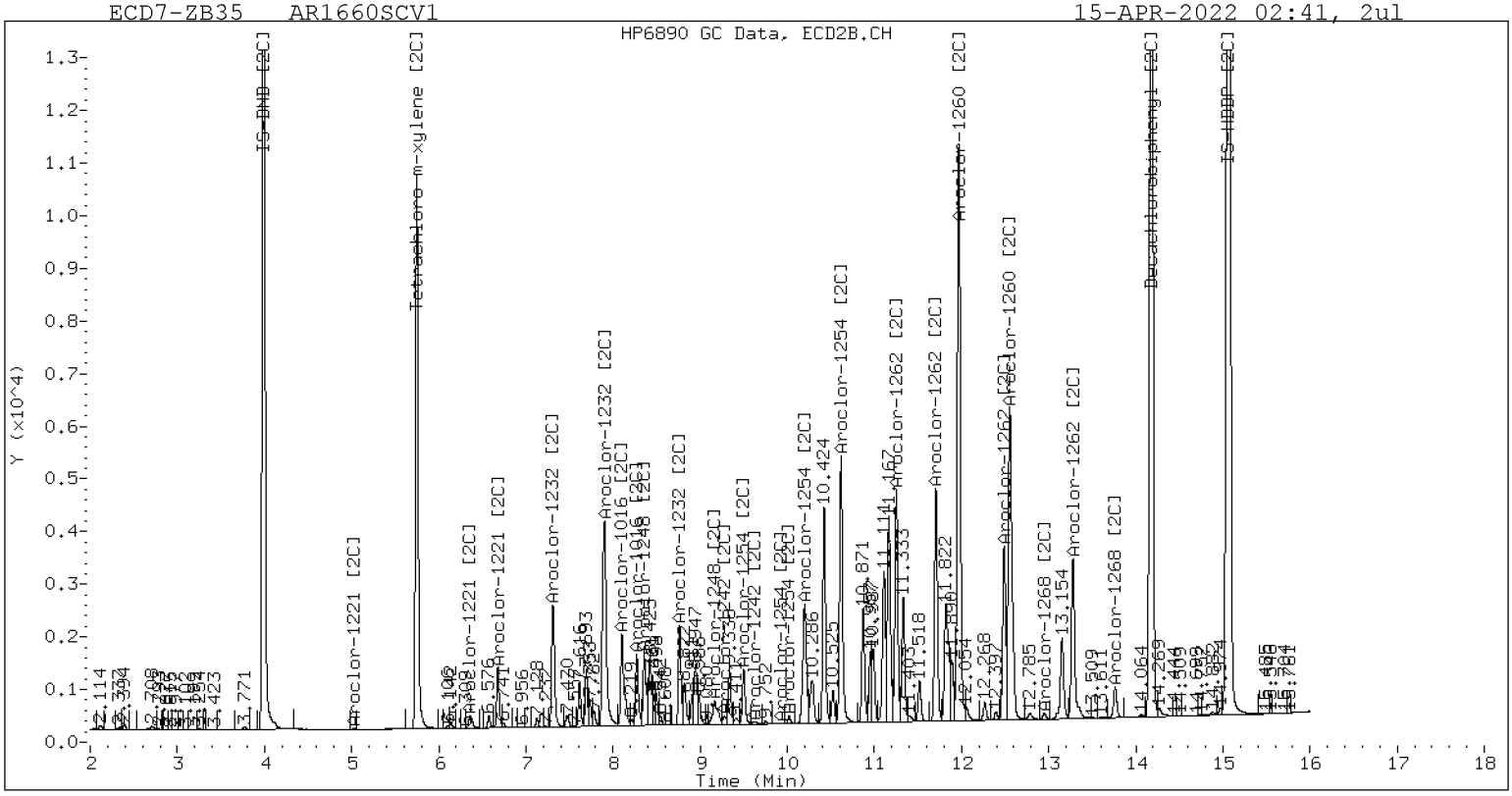
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 15-APR-2022 02:41, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 15-APR-2022 02:41, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142237ECD7.D
Data file 2: /220414.b/220414.b/04142237ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 15-APR-2022 03:03
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	250840	5.747	-0.001	447055	40.9	39.7	2.8	Tetrachloro-m-xylene
13.931	0.000	224038	14.180	-0.002	1131332	41.8	48.3	14.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	457203	-5.9
Hexabromobiphenyl	571136	516535	-9.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	882202	-3.6
Hexabromobiphenyl	1789656	1599222	-10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	30901	184.9	1	7.311	-0.000	87985	184.2
Aroclor-1016	2	7.689	-0.000	104195	182.6	2	7.902	-0.001	196406	181.3
Aroclor-1016	3	7.827	0.001	40928	183.9	3	8.102	0.001	76906	182.4
Aroclor-1016	4	7.934	0.001	28237	184.9	4	8.273	0.001	46478	185.4
Total Col1Ave (4 peaks):				184.1		Total Col2Ave (4 peaks):			183.3	RPD = 0
Corrected Ave (3 peaks):				183.8		Corrected Ave (3 peaks):			182.6	RPD = 1
Aroclor-1221	1	4.795	0.003	192	5.3	1	5.028	0.003	294	5.4
Aroclor-1221	2	6.182	-0.001	4229	67.2	2	6.360	0.006	11366	87.1
Aroclor-1221	3	6.430	0.000	21916	147.7	3	6.678	0.001	35753	151.4
Total Col1Ave (3 peaks):				73.4		Total Col2Ave (3 peaks):			81.3	RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.795	-0.000	192	8.9	1	5.028	-0.001	294	8.9
Aroclor-1232	2	6.182	-0.002	4229	100.7	2	7.311	-0.001	87985	430.7
Aroclor-1232	3	7.689	-0.001	104195	469.0	3	7.902	-0.003	196406	468.0
Aroclor-1232	4	8.614	-0.002	40620	523.9	4	8.766	-0.002	64017	544.9
Total Col1Ave (4 peaks):				275.6		Total Col2Ave (4 peaks):			363.1	RPD = 27
Corrected Ave (3 peaks):				192.9		Corrected Ave (3 peaks):			302.5	RPD = 44*
Aroclor-1242	1	7.315	0.000	30901	243.4	1	7.311	0.000	87985	237.5
Aroclor-1242	2	7.689	-0.000	104195	245.9	2	7.902	-0.001	196406	239.1
Aroclor-1242	3	9.026	-0.000	44303	268.5	3	9.280	-0.002	60652	240.9
Aroclor-1242	4	9.257	-0.001	35741	256.3	4	9.626	-0.002	78397	258.2
Total Col1Ave (4 peaks):				253.5		Total Col2Ave (4 peaks):			243.9	RPD = 4
Corrected Ave (3 peaks):				248.5		Corrected Ave (3 peaks):			239.2	RPD = 4
Aroclor-1248	1	8.444	-0.000	32887	156.8	1	8.359	0.000	56178	151.1
Aroclor-1248	2	8.614	-0.000	40620	168.2	2	8.766	-0.000	64017	153.2
Aroclor-1248	3	9.026	-0.001	44303	144.3	3	9.201	-0.000	81541	133.7
Aroclor-1248	4	9.257	-0.001	35741	151.8	4	9.626	0.001	78397	135.6
Total Col1Ave (4 peaks):				155.3		Total Col2Ave (4 peaks):			143.4	RPD = 8
Corrected Ave (3 peaks):				151.0		Corrected Ave (3 peaks):			140.1	RPD = 7
Aroclor-1254	1	9.332	-0.002	18681	51.4	1	9.498	-0.002	22798	38.9
Aroclor-1254	2	9.409	-0.001	8334	66.3	2	9.930	0.000	12088	53.9
Aroclor-1254	3	9.699	-0.001	11878	50.9	3	10.020	-0.000	20344	43.6
Aroclor-1254	4	9.835	-0.000	19768	45.0	4	10.172	-0.000	40681	39.3
Aroclor-1254	5	10.182	0.002	17749	37.8	5	10.620	0.002	9125	19.3
Total Col1Ave (5 peaks):				50.3		Total Col2Ave (5 peaks):			39.0	RPD = 25
Corrected Ave (4 peaks):				46.3		Corrected Ave (4 peaks):			35.3	RPD = 27
Aroclor-1260	1	11.081	0.002	779	3.2	1	11.713	0.005	4935	7.5
Aroclor-1260	2	11.478	0.007	346	2.6	2	11.973	0.003	3104	1.8
Aroclor-1260	3	11.767	0.001	1742	3.0	3	12.558	0.004	2070	1.8
Aroclor-1260	4	12.172	0.004	845	2.9	4	13.282	0.004	622	1.3
Aroclor-1260	5	12.285	0.006	103	0.8	NS	---			----
Total Col1Ave (5 peaks):				2.5		Total Col2Ave (4 peaks):			3.1	RPD = 21
Corrected Ave (4 peaks):				2.3		Corrected Ave (3 peaks):			1.6	RPD = 35
Aroclor-1262	1	10.858	0.002	8956	40.0	1	11.252	-0.002	1199	1.1
Aroclor-1262	2	12.285	0.004	103	0.4	2	11.713	0.006	4935	5.5
Aroclor-1262	3	12.357	0.003	189	0.6	3	12.490	0.000	1093	1.1
Aroclor-1262	4	13.019	-0.001	484	2.0	4	13.282	0.002	622	0.7
Total Col1Ave (4 peaks):				10.7		Total Col2Ave (4 peaks):			2.1	RPD = 135*
Corrected Ave (3 peaks):				1.0		Corrected Ave (3 peaks):			1.0	RPD = 3
Aroclor-1268	1	12.285	0.004	103	0.1	1	12.490	0.002	1093	0.4
Aroclor-1268	2	12.357	0.006	189	0.3	2	12.558	0.003	2070	0.7
Aroclor-1268	3	12.659	-0.078	17439	28.2	3	12.955	0.004	1608	0.6
Aroclor-1268	4	13.525	0.000	12680	6.9	4	13.765	-0.005	2247	0.2
Total Col1Ave (4 peaks):				8.9		Total Col2Ave (4 peaks):			0.5	RPD = 179*

Corrected Ave (3 peaks): 2.4 Corrected Ave (3 peaks): 0.4 RPD = 142*

Total PCB Area Col1 (5.962 - 13.830) = 840676 Col1 Total PCB = 0.2 ppm*

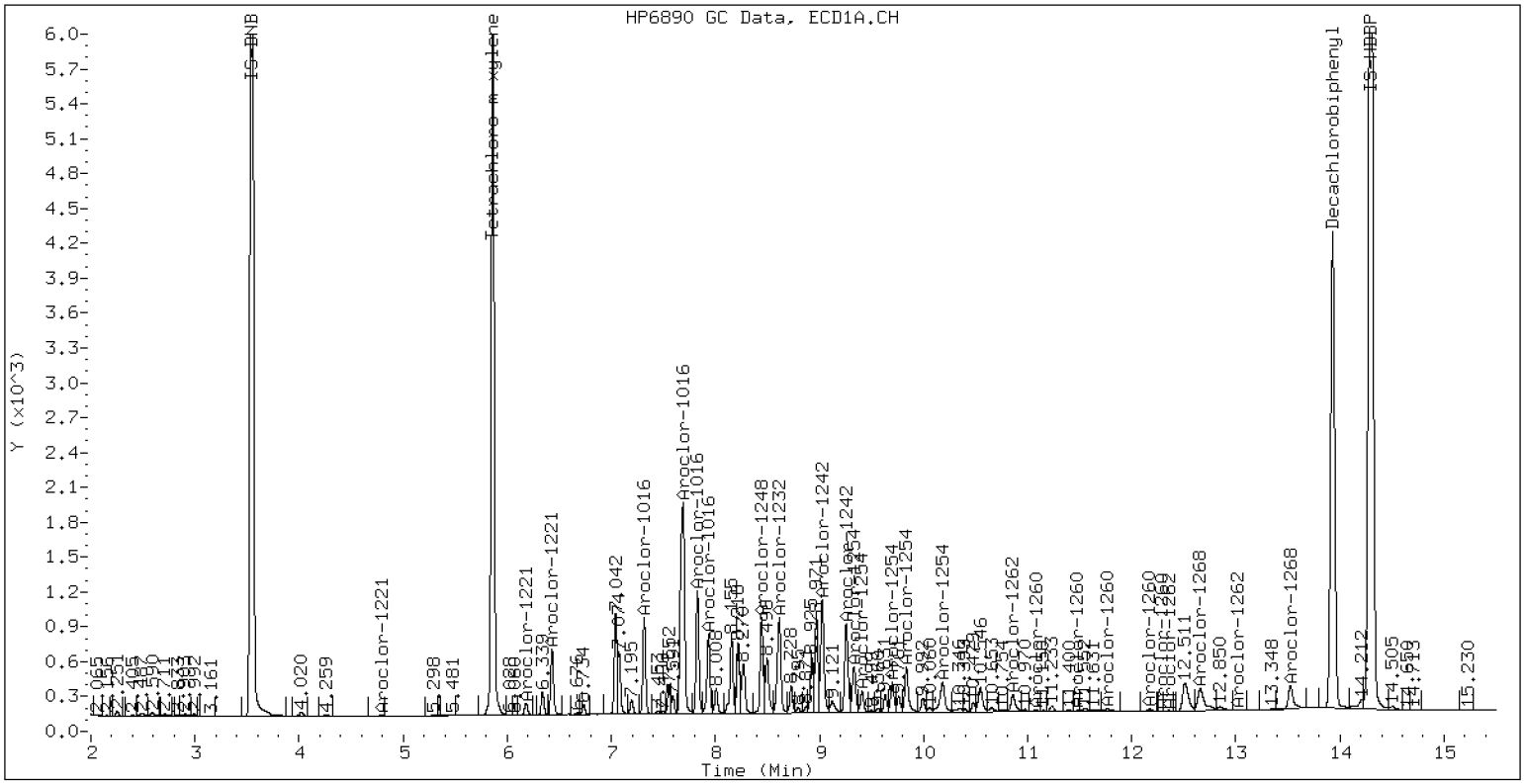
Total PCB Area Col2 (5.962 - 13.830) = 1466994 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

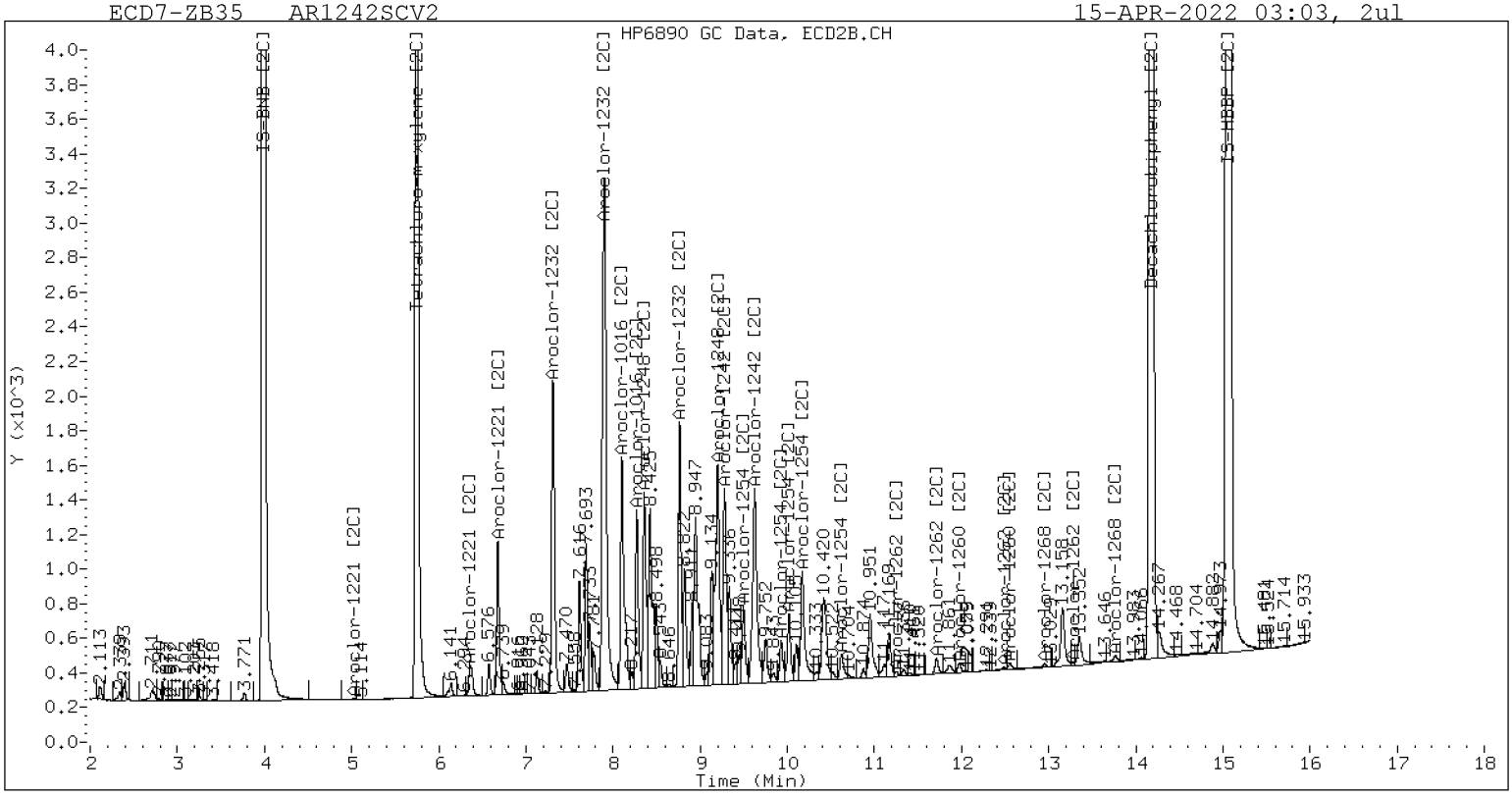
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 15-APR-2022 03:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 15-APR-2022 03:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142238ECD7.D
Data file 2: /220414.b/220414.b/04142238ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 15-APR-2022 03:24
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	249665	5.746	-0.002	450379	40.9	40.2	1.5	Tetrachloro-m-xylene
13.930	-0.001	220306	14.180	-0.002	1106001	41.0	47.0	13.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	455246	-6.3
Hexabromobiphenyl	571136	518144	-9.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	877845	-4.1
Hexabromobiphenyl	1789656	1606747	-10.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.314	-0.001	13648	82.0	1	7.309	-0.002	40994	86.2
Aroclor-1016	2	7.686	-0.003	35475	62.4	2	7.899	-0.005	124769	115.8
Aroclor-1016	3	7.829	0.003	23045	104.0	3	8.102	0.001	26779	63.8
Aroclor-1016	4	7.933	0.000	15917	104.7	4	8.273	0.001	23331	93.5
Total Col1Ave (4 peaks): 88.3						Total Col2Ave (4 peaks): 89.8 RPD = 2				
Corrected Ave (3 peaks): 82.8						Corrected Ave (3 peaks): 81.2 RPD = 2				
Aroclor-1221	1	---			0.0	1	5.035	0.010	32	0.6
Aroclor-1221	2	6.179	-0.003	276	4.4	2	6.379	0.024	5431	41.8
Aroclor-1221	3	6.429	-0.001	2447	16.6	3	6.680	0.003	4703	20.0
Col1Ave: <3 Quant Peaks						Col2Ave: 20.8				
Aroclor-1232	1	---			0.0	1	5.035	0.006	32	1.0
Aroclor-1232	2	6.179	-0.005	276	6.6	2	7.309	-0.003	40994	201.7
Aroclor-1232	3	7.686	-0.004	35475	160.4	3	7.899	-0.006	124769	298.8
Aroclor-1232	4	8.614	-0.002	62069	803.9	4	8.766	-0.002	106076	907.3
Total Col1Ave (3 peaks): 323.6						Total Col2Ave (4 peaks): 352.2 RPD = 8				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 167.1				
Aroclor-1242	1	7.314	-0.000	13648	107.9	1	7.309	-0.002	40994	111.2
Aroclor-1242	2	7.686	-0.003	35475	84.1	2	7.899	-0.004	124769	152.6
Aroclor-1242	3	9.027	0.000	79127	481.6	3	9.279	-0.004	110745	442.0
Aroclor-1242	4	9.257	-0.001	61014	439.4	4	9.624	-0.004	146393	484.6
Total Col1Ave (4 peaks): 278.3						Total Col2Ave (4 peaks): 297.6 RPD = 7				
Corrected Ave (3 peaks): 210.5						Corrected Ave (3 peaks): 235.3 RPD = 11				
Aroclor-1248	1	8.444	-0.000	53684	257.1	1	8.359	-0.000	92883	251.0
Aroclor-1248	2	8.614	-0.000	62069	258.0	2	8.766	-0.000	106076	255.2
Aroclor-1248	3	9.027	-0.000	79127	258.8	3	9.201	-0.001	150647	248.2
Aroclor-1248	4	9.257	-0.001	61014	260.3	4	9.624	-0.000	146393	254.5
Total Col1Ave (4 peaks): 258.6						Total Col2Ave (4 peaks): 252.2 RPD = 2				
Corrected Ave (3 peaks): 258.0						Corrected Ave (3 peaks): 251.2 RPD = 3				
Aroclor-1254	1	9.331	-0.003	37207	102.9	1	9.499	-0.002	45011	77.2
Aroclor-1254	2	9.409	-0.001	17605	140.7	2	9.929	-0.000	29438	131.9
Aroclor-1254	3	9.699	-0.001	24882	107.2	3	10.020	-0.001	45029	96.9
Aroclor-1254	4	9.835	-0.000	40014	91.5	4	10.171	-0.001	84804	82.3
Aroclor-1254	5	10.182	0.003	30534	65.4	5	10.627	0.008	11336	24.0
Total Col1Ave (5 peaks): 101.5						Total Col2Ave (5 peaks): 82.5 RPD = 21				
Corrected Ave (4 peaks): 91.7						Corrected Ave (4 peaks): 70.1 RPD = 27				
Aroclor-1260	1	11.079	-0.000	637	2.6	1	11.712	0.005	5024	7.6
Aroclor-1260	2	11.481	0.010	136	1.0	2	11.974	0.004	3107	1.8
Aroclor-1260	3	11.768	0.002	1276	2.2	3	12.558	0.004	2099	1.8
Aroclor-1260	4	12.170	0.002	725	2.4	4	13.278	0.000	1011	2.1
Aroclor-1260	5	12.283	0.005	237	1.9	NS	---			----
Total Col1Ave (5 peaks): 2.0						Total Col2Ave (4 peaks): 3.3 RPD = 48*				
Corrected Ave (4 peaks): 1.9						Corrected Ave (3 peaks): 1.9 RPD = 0				
Aroclor-1262	1	10.857	0.001	8221	36.6	1	11.250	-0.004	1362	1.3
Aroclor-1262	2	12.283	0.002	237	0.8	2	11.712	0.005	5024	5.6
Aroclor-1262	3	12.357	0.003	283	1.0	3	12.486	-0.004	1723	1.7
Aroclor-1262	4	13.022	0.002	390	1.6	4	13.278	-0.001	1011	1.1
Total Col1Ave (4 peaks): 10.0						Total Col2Ave (4 peaks): 2.4 RPD = 123*				
Corrected Ave (3 peaks): 1.1						Corrected Ave (3 peaks): 1.3 RPD = 18				
Aroclor-1268	1	12.283	0.002	237	0.3	1	12.486	-0.002	1723	0.6
Aroclor-1268	2	12.357	0.005	283	0.4	2	12.558	0.003	2099	0.7
Aroclor-1268	3	12.738	0.000	2563	4.1	3	12.954	0.003	1316	0.5
Aroclor-1268	4	13.524	-0.000	13610	7.4	4	13.763	-0.006	2391	0.2
Total Col1Ave (4 peaks): 3.0						Total Col2Ave (4 peaks): 0.5 RPD = 142*				
Corrected Ave (3 peaks): 1.6						Corrected Ave (3 peaks): 0.5 RPD = 112*				

Total PCB Area Col1 (5.962 - 13.830) = 998454 Col1 Total PCB = 0.3 ppm*

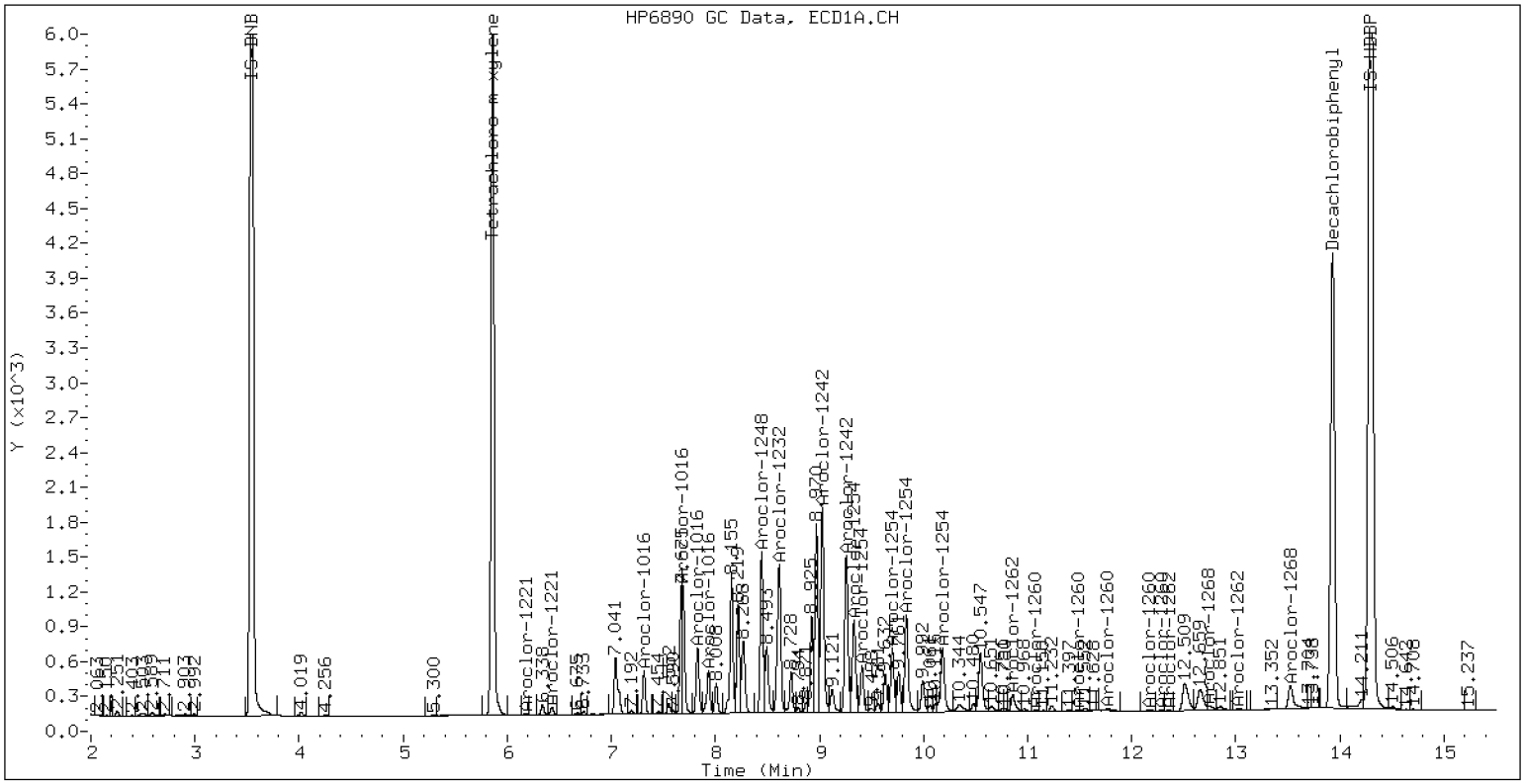
Total PCB Area Col2 (5.962 - 13.830) = 1832905 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

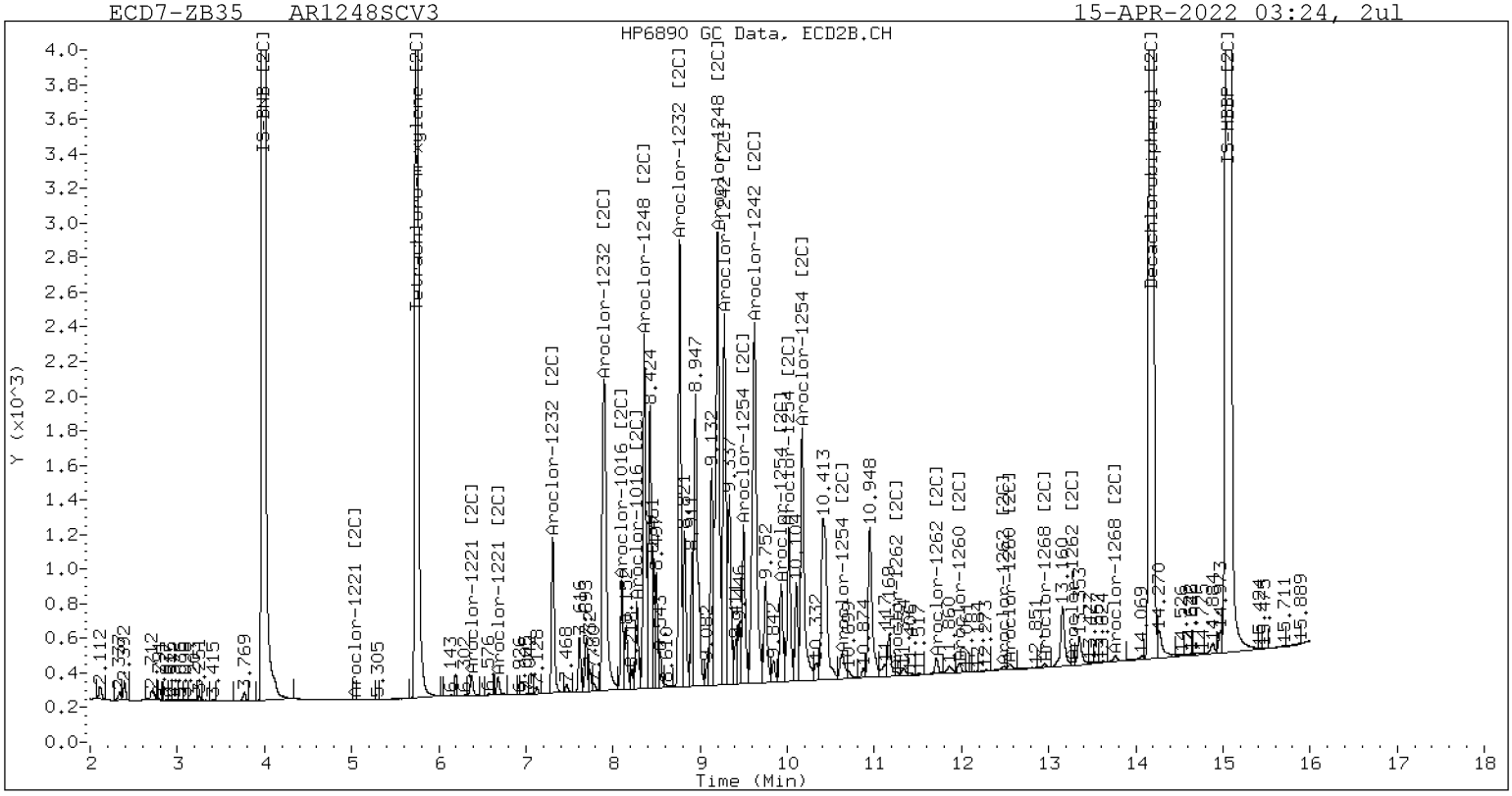
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 15-APR-2022 03:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 15-APR-2022 03:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142239ECD7.D
Data file 2: /220414.b/220414.b/04142239ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 15-APR-2022 03:46
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	244794	5.748	-0.001	440425	39.5	39.0	1.3	Tetrachloro-m-xylene
13.933	0.002	218124	14.180	-0.001	1099415	40.7	46.7	13.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	461501	-5.0
Hexabromobiphenyl	571136	517452	-9.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	885861	-3.2
Hexabromobiphenyl	1789656	1609025	-10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	498	3.0	1	7.311	0.000	984	2.1
Aroclor-1016	2	7.675	-0.015	2273	3.9	2	7.901	-0.002	3244	3.0
Aroclor-1016	3	7.834	0.007	1217	5.4	3	8.107	0.006	531	1.3
Aroclor-1016	4	7.935	0.002	502	3.3	4	8.276	0.004	423	1.7
Total Col1Ave (4 peaks):					3.9	Total Col2Ave (4 peaks):				2.0 RPD = 65*
Corrected Ave (3 peaks):					3.4	Corrected Ave (3 peaks):				1.7 RPD = 68*
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.379	0.025	4779	36.5
Aroclor-1221	3	---			0.0	3	6.690	0.012	1256	5.3
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.311	-0.001	984	4.8
Aroclor-1232	3	7.675	-0.016	2273	10.1	3	7.901	-0.004	3244	7.7
Aroclor-1232	4	8.615	-0.001	8410	107.4	4	8.767	-0.000	36342	308.0
Col1Ave: <3 Quant Peaks						Col2Ave: 106.8				
Aroclor-1242	1	7.315	0.000	498	3.9	1	7.311	0.000	984	2.6
Aroclor-1242	2	7.675	-0.014	2273	5.3	2	7.901	-0.002	3244	3.9
Aroclor-1242	3	9.032	0.006	67072	402.7	3	9.278	-0.004	16087	63.6
Aroclor-1242	4	9.257	-0.001	20987	149.1	4	9.593	-0.035	76693	251.6
Total Col1Ave (4 peaks):					140.2	Total Col2Ave (4 peaks):				80.4 RPD = 54*
Corrected Ave (3 peaks):					52.8	Corrected Ave (3 peaks):				23.4 RPD = 77*
Aroclor-1248	1	8.445	0.000	18624	88.0	1	8.359	0.000	57095	152.9
Aroclor-1248	2	8.615	0.001	8410	34.5	2	8.767	0.002	36342	86.6
Aroclor-1248	3	9.032	0.006	67072	216.4	3	9.204	0.002	55368	90.4
Aroclor-1248	4	9.257	-0.001	20987	88.3	4	9.593	-0.031	76693	132.1
Total Col1Ave (4 peaks):					106.8	Total Col2Ave (4 peaks):				115.5 RPD = 8
Corrected Ave (3 peaks):					70.3	Corrected Ave (3 peaks):				103.0 RPD = 38
Aroclor-1254	1	9.333	-0.001	95176	259.6	1	9.499	-0.001	150129	255.1
Aroclor-1254	2	9.409	-0.000	33089	260.8	2	9.929	-0.001	57114	253.7
Aroclor-1254	3	9.699	-0.001	61588	261.7	3	10.020	-0.000	118253	252.3
Aroclor-1254	4	9.834	-0.001	112462	253.6	4	10.170	-0.002	258020	248.1
Aroclor-1254	5	10.178	-0.002	125132	264.3	5	10.618	-0.001	122384	257.2
Total Col1Ave (5 peaks):					260.0	Total Col2Ave (5 peaks):				253.3 RPD = 3
Corrected Ave (4 peaks):					258.9	Corrected Ave (4 peaks):				252.3 RPD = 3
Aroclor-1260	1	11.079	-0.000	5854	23.9	1	11.711	0.004	70801	106.4
Aroclor-1260	2	11.474	0.003	3683	27.9	2	11.972	0.002	43594	24.9
Aroclor-1260	3	11.767	0.001	14165	24.2	3	12.555	0.001	28563	24.5
Aroclor-1260	4	12.170	0.002	12902	43.5	4	13.280	0.002	1731	3.6
Aroclor-1260	5	12.283	0.004	400	3.2	NS	---			----
Total Col1Ave (5 peaks):					24.5	Total Col2Ave (4 peaks):				39.8 RPD = 47*
Corrected Ave (4 peaks):					19.8	Corrected Ave (3 peaks):				17.7 RPD = 11
Aroclor-1262	1	10.856	0.000	112936	503.4	1	11.252	-0.002	11740	11.1
Aroclor-1262	2	12.283	0.002	400	1.4	2	11.711	0.005	70801	78.3
Aroclor-1262	3	12.354	0.000	626	2.1	3	12.498	0.008	4978	4.8
Aroclor-1262	4	13.021	0.001	1005	4.1	4	13.280	0.000	1731	1.9
Total Col1Ave (4 peaks):					127.7	Total Col2Ave (4 peaks):				24.0 RPD = 137*
Corrected Ave (3 peaks):					2.5	Corrected Ave (3 peaks):				5.9 RPD = 80*
Aroclor-1268	1	12.283	0.002	400	0.5	1	12.498	0.010	4978	1.8
Aroclor-1268	2	12.354	0.003	626	0.9	2	12.555	-0.001	28563	9.7
Aroclor-1268	3	12.744	0.007	3057	4.9	3	12.953	0.002	1289	0.5
Aroclor-1268	4	13.526	0.001	12793	6.9	4	13.766	-0.003	2227	0.2
Total Col1Ave (4 peaks):					3.3	Total Col2Ave (4 peaks):				3.1 RPD = 8
Corrected Ave (3 peaks):					2.1	Corrected Ave (3 peaks):				0.8 RPD = 86*

Total PCB Area Col1 (5.962 - 13.830) = 1218996 Col1 Total PCB = 0.3 ppm*

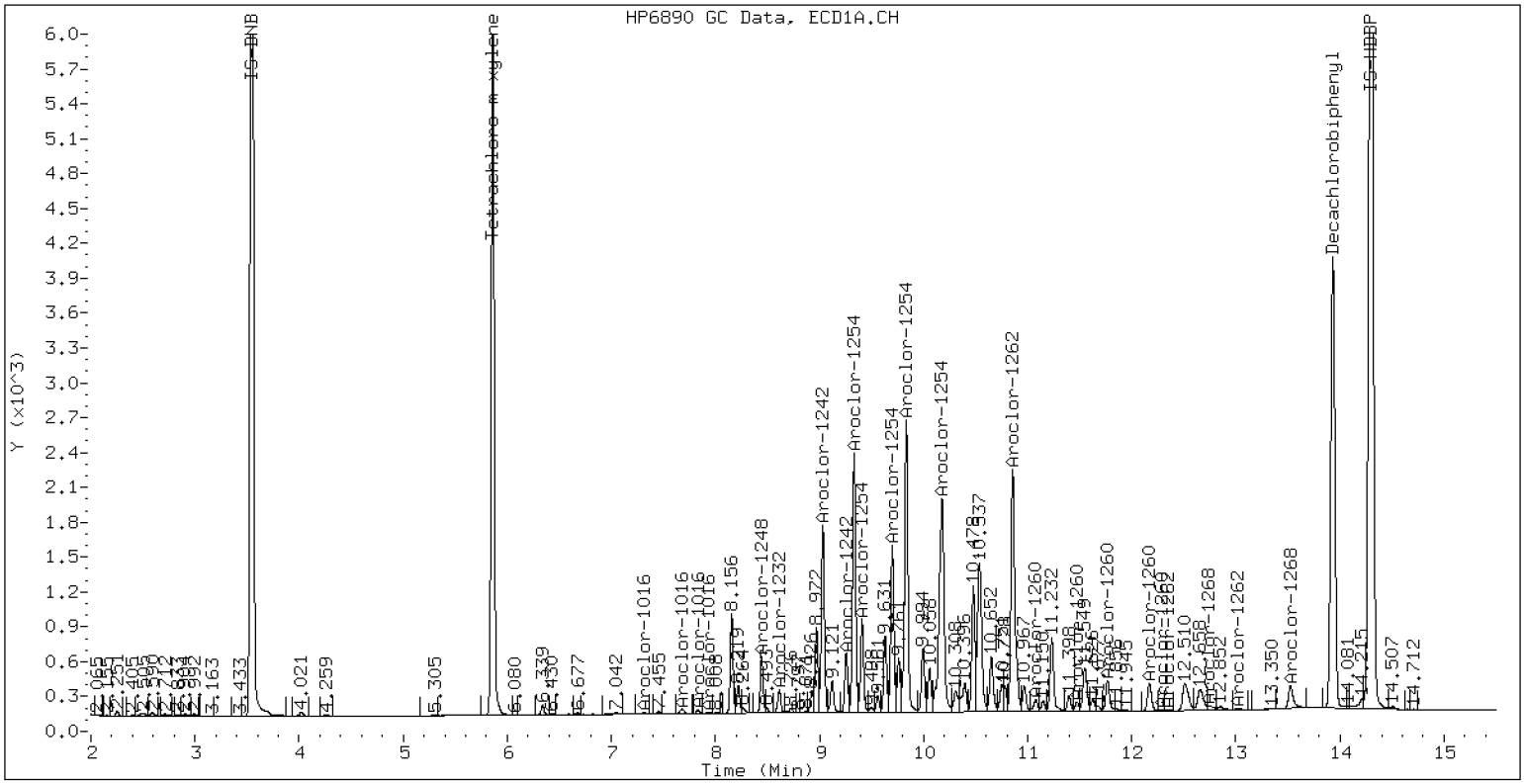
Total PCB Area Col2 (5.962 - 13.830) = 2421904 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

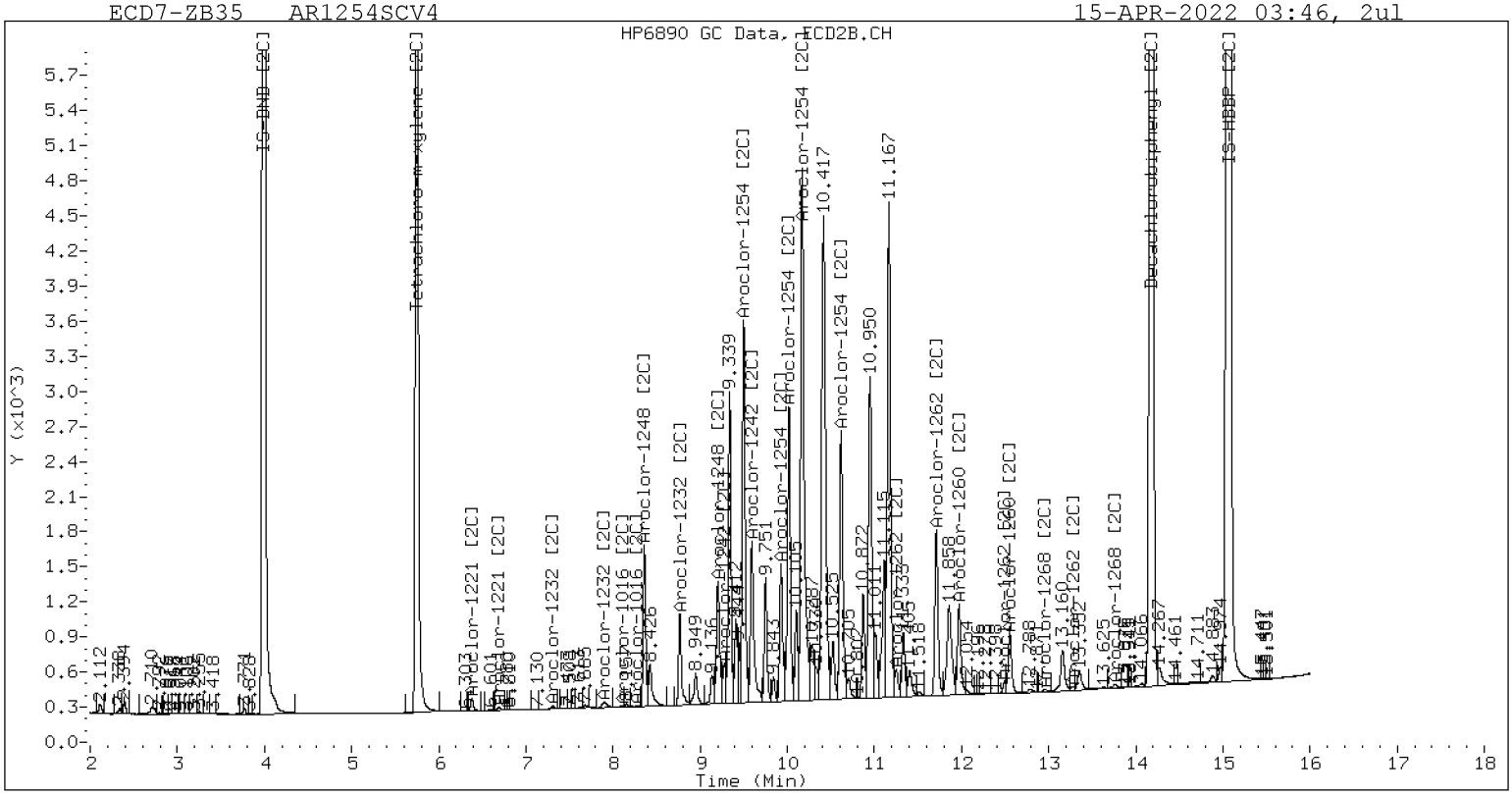
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 15-APR-2022 03:46, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 15-APR-2022 03:46, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142240ECD7.D
Data file 2: /220414.b/220414.b/04142240ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 15-APR-2022 04:08
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.002	251744	5.746	-0.002	439972	40.6	39.6	2.7	Tetrachloro-m-xylene
13.930	-0.000	223936	14.180	-0.002	1114196	41.9	47.8	13.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	461787	-5.0
Hexabromobiphenyl	571136	516078	-9.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	872531	-4.6
Hexabromobiphenyl	1789656	1592530	-11.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	-0.000	4368	25.9	1	7.316	0.005	19564	41.4
Aroclor-1016	2	7.689	-0.000	12825	22.3	2	7.904	0.000	21712	20.3
Aroclor-1016	3	7.827	0.001	5512	24.5	3	8.104	0.004	9298	22.3
Aroclor-1016	4	7.934	0.001	3435	22.3	4	8.275	0.003	5173	20.9
Total Col1Ave (4 peaks):					23.7	Total Col2Ave (4 peaks):				26.2 RPD = 10
Corrected Ave (3 peaks):					23.0	Corrected Ave (3 peaks):				21.1 RPD = 8
Aroclor-1221	1	4.792	-0.000	10282	279.6	1	5.025	-0.000	15397	283.7
Aroclor-1221	2	6.182	-0.000	16953	266.5	2	6.354	-0.000	33652	260.8
Aroclor-1221	3	6.429	-0.001	40197	268.2	3	6.677	-0.001	61352	262.7
Total Col1Ave (3 peaks):					271.4	Total Col2Ave (3 peaks):				269.1 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.792	-0.003	10282	470.9	1	5.025	-0.005	15397	470.6
Aroclor-1232	2	6.182	-0.002	16953	399.5	2	7.316	0.004	19564	96.8
Aroclor-1232	3	7.689	-0.001	12825	57.2	3	7.904	-0.001	21712	52.3
Aroclor-1232	4	8.615	-0.001	2735	34.9	4	8.767	-0.000	5111	44.0
Total Col1Ave (4 peaks):					240.6	Total Col2Ave (4 peaks):				165.9 RPD = 37
Corrected Ave (3 peaks):					163.9	Corrected Ave (3 peaks):				64.4 RPD = 87*
Aroclor-1242	1	7.315	-0.000	4368	34.1	1	7.316	0.005	19564	53.4
Aroclor-1242	2	7.689	0.000	12825	30.0	2	7.904	0.001	21712	26.7
Aroclor-1242	3	9.033	0.006	22237	133.4	3	9.283	0.001	3130	12.6
Aroclor-1242	4	9.258	-0.000	4243	30.1	4	9.625	-0.003	5102	17.0
Total Col1Ave (4 peaks):					56.9	Total Col2Ave (4 peaks):				27.4 RPD = 70*
Corrected Ave (3 peaks):					31.4	Corrected Ave (3 peaks):				18.8 RPD = 50*
Aroclor-1248	1	8.445	0.000	3005	14.2	1	8.360	0.001	6560	17.8
Aroclor-1248	2	8.615	0.001	2735	11.2	2	8.767	0.002	5111	12.4
Aroclor-1248	3	9.033	0.006	22237	71.7	3	9.206	0.004	8926	14.8
Aroclor-1248	4	9.258	-0.000	4243	17.8	4	9.625	0.000	5102	8.9
Total Col1Ave (4 peaks):					28.7	Total Col2Ave (4 peaks):				13.5 RPD = 72*
Corrected Ave (3 peaks):					14.4	Corrected Ave (3 peaks):				12.0 RPD = 18
Aroclor-1254	1	9.334	0.000	24744	67.4	1	9.500	-0.001	43964	75.8
Aroclor-1254	2	9.409	-0.001	2115	16.7	2	9.929	-0.000	3004	13.5
Aroclor-1254	3	9.699	-0.001	4478	19.0	3	10.020	-0.001	7647	16.6
Aroclor-1254	4	9.801	-0.034	32946	74.2	4	10.199	0.027	227991	222.6
Aroclor-1254	5	10.156	-0.024	129022	272.4	5	10.617	-0.002	354885	757.2
Total Col1Ave (5 peaks):					89.9	Total Col2Ave (5 peaks):				217.1 RPD = 83*
Corrected Ave (4 peaks):					44.3	Corrected Ave (4 peaks):				82.1 RPD = 60*
Aroclor-1260	1	11.079	0.000	206461	846.2	1	11.707	-0.001	481868	731.3
Aroclor-1260	2	11.472	0.001	77947	591.7	2	11.969	-0.001	1196691	689.3
Aroclor-1260	3	11.766	0.000	376682	645.9	3	12.555	0.001	868104	753.4
Aroclor-1260	4	12.169	0.001	125898	425.8	4	13.279	0.001	528687	1104.7
Aroclor-1260	5	12.280	0.001	152283	1212.9	NS	---			----
Total Col1Ave (5 peaks):					744.5	Total Col2Ave (4 peaks):				819.7 RPD = 10
Corrected Ave (4 peaks):					627.4	Corrected Ave (3 peaks):				724.7 RPD = 14
Aroclor-1262	1	10.854	-0.002	119589	534.5	1	11.255	0.001	572977	546.0
Aroclor-1262	2	12.280	-0.001	152283	527.7	2	11.707	0.000	481868	538.4
Aroclor-1262	3	12.353	-0.001	156582	528.8	3	12.488	-0.001	570725	552.2
Aroclor-1262	4	13.019	-0.001	130025	528.4	4	13.279	-0.000	528687	572.4
Total Col1Ave (4 peaks):					529.9	Total Col2Ave (4 peaks):				552.3 RPD = 4
Corrected Ave (3 peaks):					528.3	Corrected Ave (3 peaks):				545.5 RPD = 3
Aroclor-1268	1	12.280	-0.001	152283	193.3	1	12.488	0.000	570725	208.8
Aroclor-1268	2	12.353	0.002	156582	216.0	2	12.555	-0.001	868104	297.9
Aroclor-1268	3	12.758	0.020	63836	103.4	3	12.949	-0.002	29404	11.5
Aroclor-1268	4	13.523	-0.002	57509	31.2	4	13.764	-0.005	166374	16.5
Total Col1Ave (4 peaks):					136.0	Total Col2Ave (4 peaks):				133.7 RPD = 2

Corrected Ave (3 peaks): 109.3 Corrected Ave (3 peaks): 78.9 RPD = 32

Total PCB Area Col1 (5.962 - 13.830) = 2802814 Col1 Total PCB = 0.7 ppm*

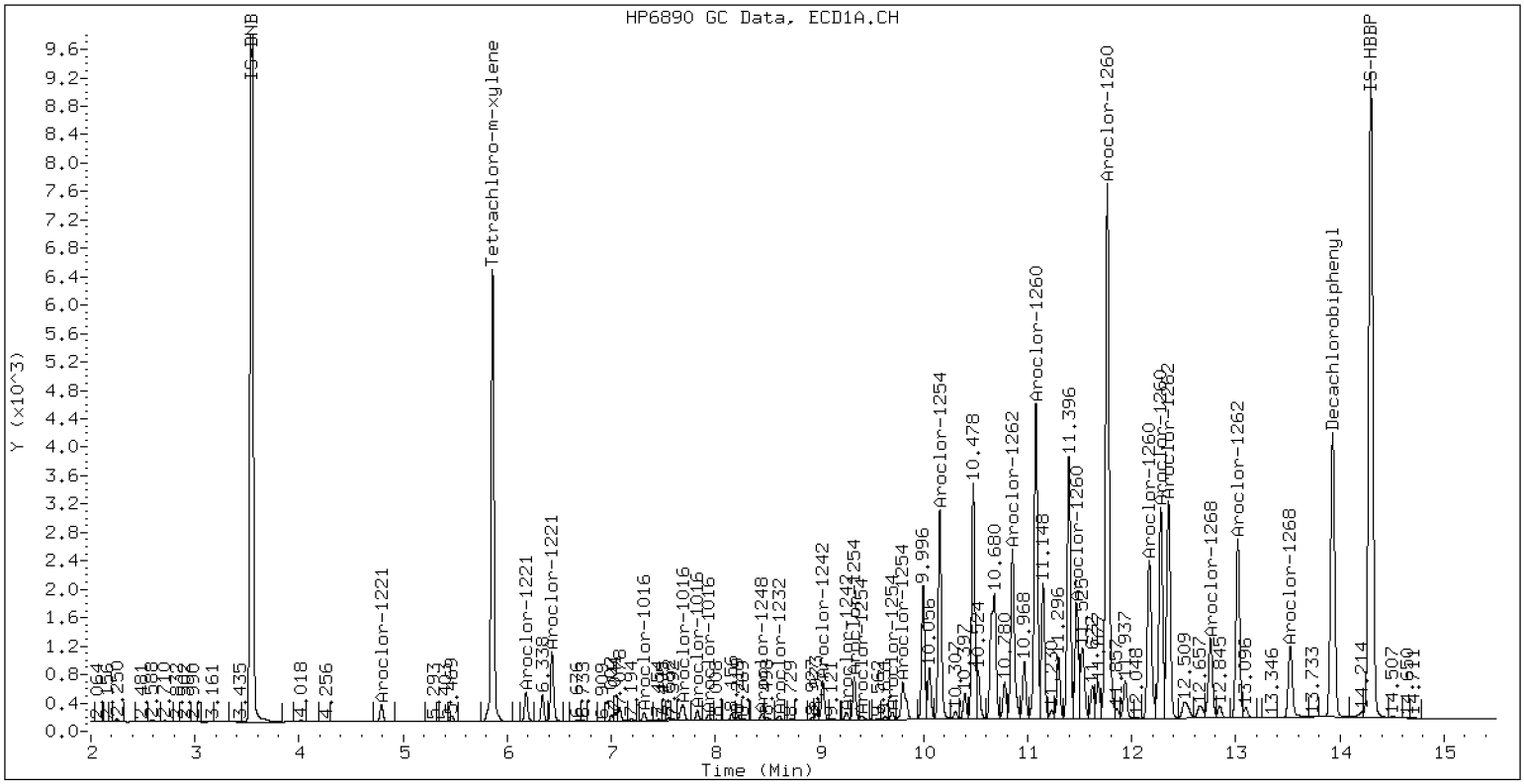
Total PCB Area Col2 (5.962 - 13.830) = 7568017 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

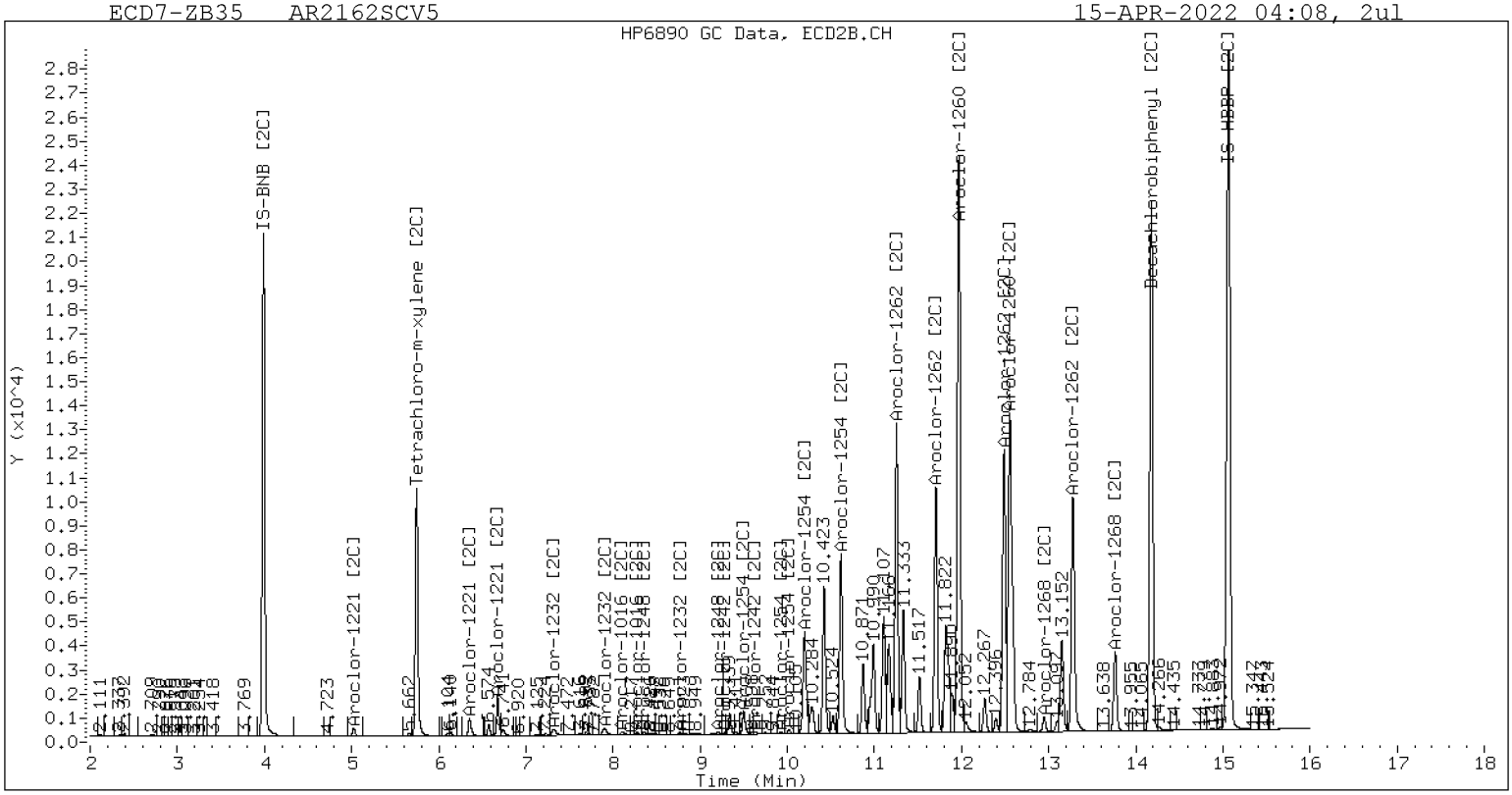
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 15-APR-2022 04:08, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 15-APR-2022 04:08, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142241ECD7.D
Data file 2: /220414.b/220414.b/04142241ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 15-APR-2022 04:29
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	254603	5.747	-0.002	447665	41.4	40.4	2.6	Tetrachloro-m-xylene
13.931	0.001	321268	14.182	0.001	1783460	59.8	76.8	24.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	457862	-5.8
Hexabromobiphenyl	571136	518312	-9.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	869658	-5.0
Hexabromobiphenyl	1789656	1586735	-11.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	18307	109.4	1	7.312	0.001	53523	113.7
Aroclor-1016	2	7.689	-0.000	60217	105.4	2	7.903	-0.001	109657	102.7
Aroclor-1016	3	7.827	0.001	23899	107.2	3	8.102	0.002	42255	101.7
Aroclor-1016	4	7.934	0.001	16567	108.3	4	8.273	0.002	25821	104.5
Total Col1Ave (4 peaks):				107.6		Total Col2Ave (4 peaks):			105.6	RPD = 2
Corrected Ave (3 peaks):				107.0		Corrected Ave (3 peaks):			103.0	RPD = 4
Aroclor-1221	1	4.792	0.000	5496	150.7	1	5.026	0.001	8555	158.1
Aroclor-1221	2	6.182	-0.001	9863	156.4	2	6.355	0.001	20612	160.3
Aroclor-1221	3	6.430	-0.000	29869	201.0	3	6.678	0.000	46815	201.1
Total Col1Ave (3 peaks):				169.4		Total Col2Ave (3 peaks):			173.2	RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.792	-0.003	5496	253.9	1	5.026	-0.003	8555	262.4
Aroclor-1232	2	6.182	-0.002	9863	234.4	2	7.312	-0.000	53523	265.8
Aroclor-1232	3	7.689	-0.001	60217	270.7	3	7.903	-0.002	109657	265.1
Aroclor-1232	4	8.614	-0.002	21488	276.7	4	8.766	-0.002	31829	274.8
Total Col1Ave (4 peaks):				258.9		Total Col2Ave (4 peaks):			267.0	RPD = 3
Corrected Ave (3 peaks):				253.0		Corrected Ave (3 peaks):			264.4	RPD = 4
Aroclor-1242	1	7.315	0.000	18307	144.0	1	7.312	0.001	53523	146.6
Aroclor-1242	2	7.689	-0.000	60217	141.9	2	7.903	-0.000	109657	135.4
Aroclor-1242	3	9.027	0.001	22963	139.0	3	9.281	-0.001	32271	130.0
Aroclor-1242	4	9.259	0.001	19441	139.2	4	9.629	0.001	38416	128.4
Total Col1Ave (4 peaks):				141.0		Total Col2Ave (4 peaks):			135.1	RPD = 4
Corrected Ave (3 peaks):				140.0		Corrected Ave (3 peaks):			131.3	RPD = 6
Aroclor-1248	1	8.444	0.000	17840	85.0	1	8.359	0.001	27183	74.2
Aroclor-1248	2	8.614	0.000	21488	88.8	2	8.766	0.000	31829	77.3
Aroclor-1248	3	9.027	0.000	22963	74.7	3	9.202	0.001	42670	71.0
Aroclor-1248	4	9.259	0.001	19441	82.5	4	9.629	0.004	38416	67.4
Total Col1Ave (4 peaks):				82.7		Total Col2Ave (4 peaks):			72.5	RPD = 13
Corrected Ave (3 peaks):				80.7		Corrected Ave (3 peaks):			70.8	RPD = 13
Aroclor-1254	1	9.332	-0.001	6993	19.2	1	9.499	-0.001	7186	12.4
Aroclor-1254	2	9.409	-0.000	3273	26.0	2	9.931	0.002	3814	17.3
Aroclor-1254	3	9.701	0.001	4068	17.4	3	10.021	0.000	6047	13.1
Aroclor-1254	4	9.837	0.002	7049	16.0	4	10.175	0.003	13499	13.2
Aroclor-1254	5	10.184	0.004	5900	12.6	5	10.621	0.002	4065	8.7
Total Col1Ave (5 peaks):				18.2		Total Col2Ave (5 peaks):			13.0	RPD = 34
Corrected Ave (4 peaks):				16.3		Corrected Ave (4 peaks):			11.9	RPD = 31
Aroclor-1260	1	11.080	0.001	40947	167.1	1	11.703	-0.004	149843	228.2
Aroclor-1260	2	11.517	0.046	51145	386.5	2	11.969	-0.001	66461	38.4
Aroclor-1260	3	11.766	0.000	26962	46.0	3	12.555	0.001	798155	695.2
Aroclor-1260	4	12.171	0.003	1129	3.8	4	13.278	0.000	282479	592.4
Aroclor-1260	5	12.281	0.002	216654	1718.2	NS	---			----
Total Col1Ave (5 peaks):				464.3		Total Col2Ave (4 peaks):			388.6	RPD = 18
Corrected Ave (4 peaks):				150.9		Corrected Ave (3 peaks):			286.3	RPD = 62*
Aroclor-1262	1	10.856	0.001	2490	11.1	1	11.255	0.001	104292	99.8
Aroclor-1262	2	12.281	-0.000	216654	747.6	2	11.703	-0.003	149843	168.0
Aroclor-1262	3	12.352	-0.002	199209	669.8	3	12.488	-0.002	746224	724.7
Aroclor-1262	4	13.019	-0.001	78954	319.5	4	13.278	-0.001	282479	307.0
Total Col1Ave (4 peaks):				437.0		Total Col2Ave (4 peaks):			324.8	RPD = 29
Corrected Ave (3 peaks):				333.5		Corrected Ave (3 peaks):			191.6	RPD = 54*
Aroclor-1268	1	12.281	-0.000	216654	273.9	1	12.488	-0.001	746224	274.0
Aroclor-1268	2	12.352	0.000	199209	273.6	2	12.555	-0.001	798155	274.9
Aroclor-1268	3	12.737	-0.000	171734	277.1	3	12.951	-0.000	695687	272.5
Aroclor-1268	4	13.525	0.000	517235	279.4	4	13.770	0.001	2721576	270.3
Total Col1Ave (4 peaks):				276.0		Total Col2Ave (4 peaks):			272.9	RPD = 1

Corrected Ave (3 peaks): 274.9 Corrected Ave (3 peaks): 272.3 RPD = 1

Total PCB Area Col1 (5.962 - 13.830) = 1868113 Col1 Total PCB = 0.5 ppm*

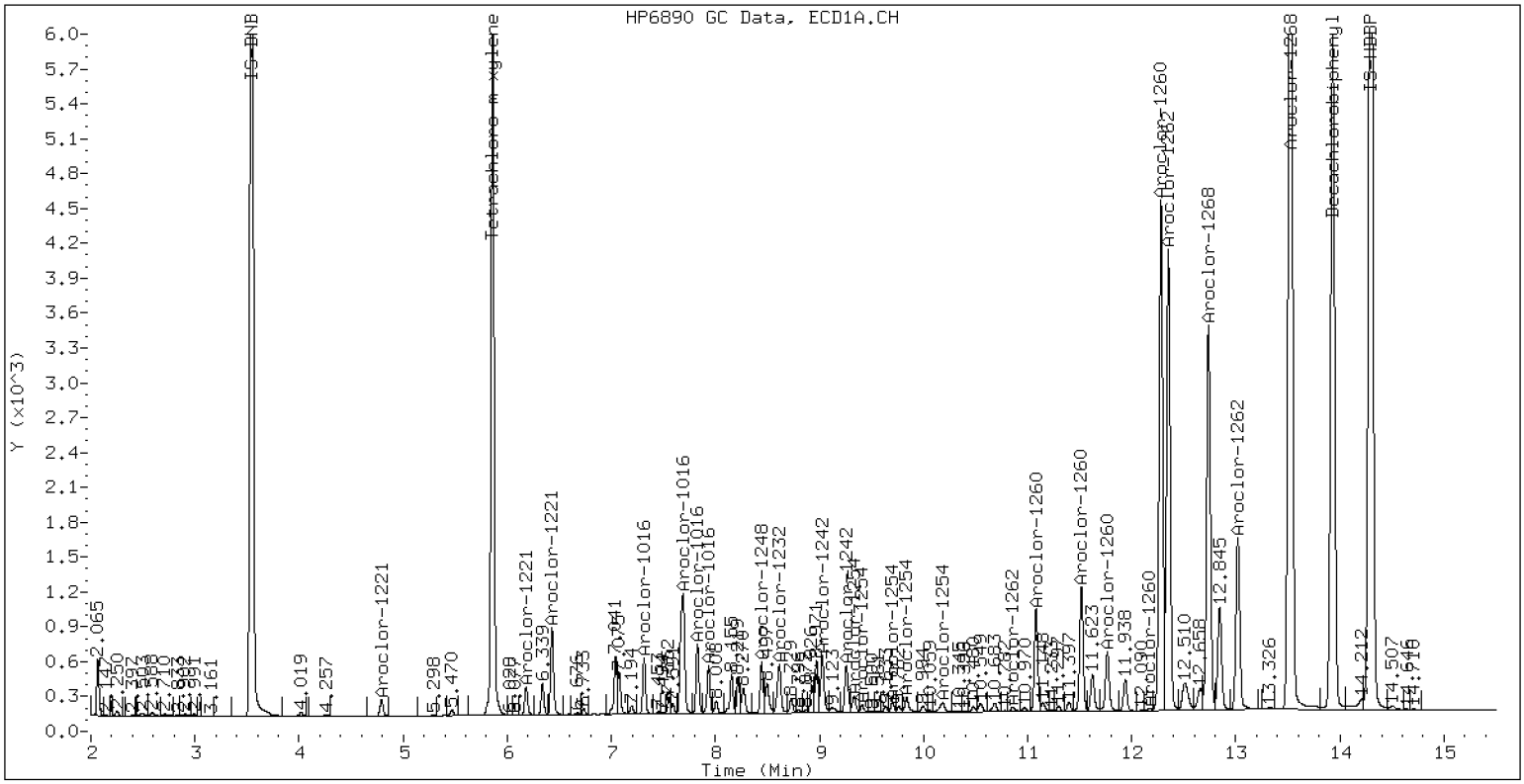
Total PCB Area Col2 (5.962 - 13.830) = 6603707 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

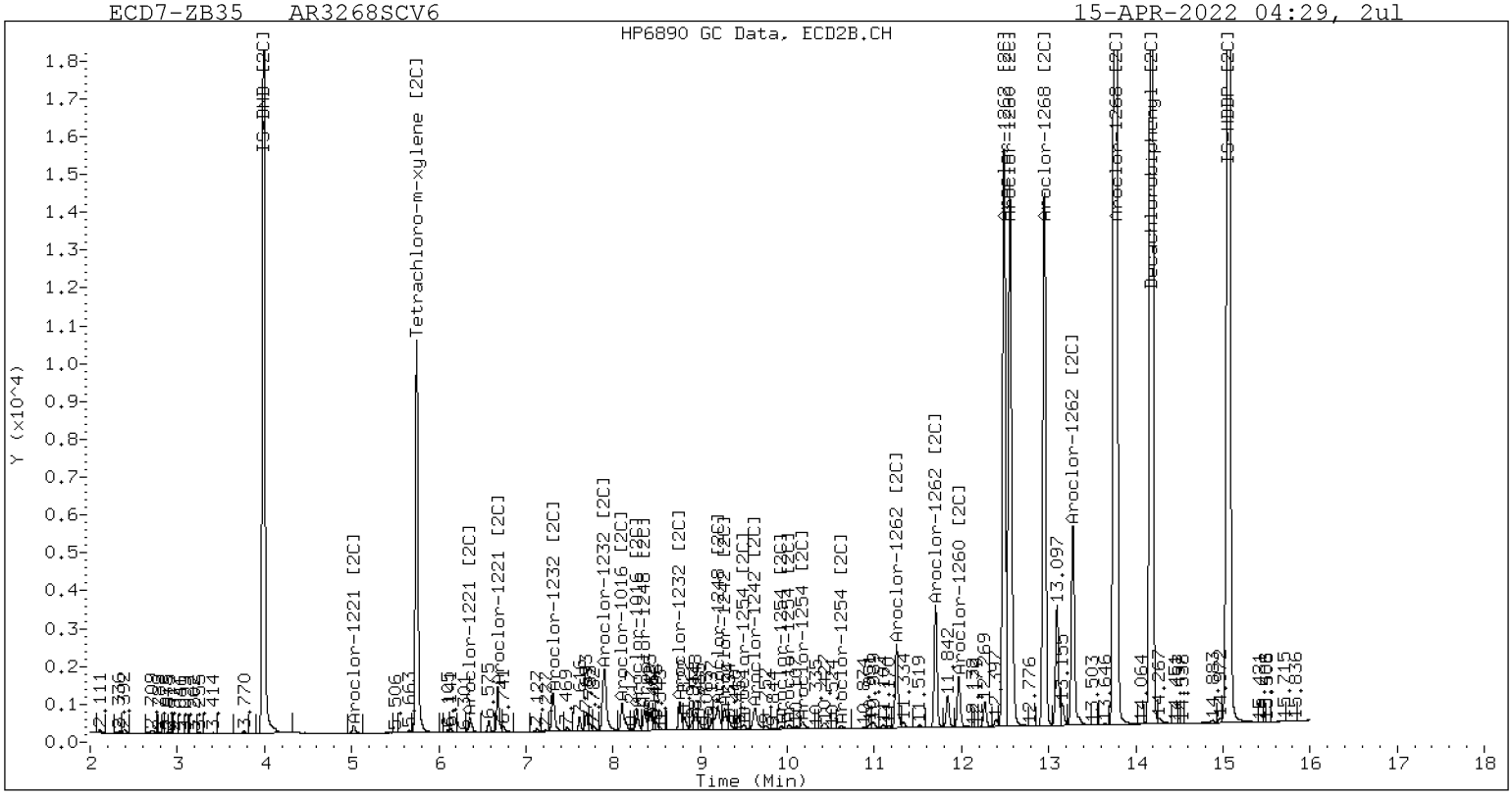
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 15-APR-2022 04:29, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 15-APR-2022 04:29, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /220414.b/04142242ECD7.D ARI ID: 0.1 PPM DDTS

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
9.297	0.000	140906	9.955	0.000	404260	0.100	0.100	0.0	2,4-DDE
10.335	0.000	171183	10.709	0.000	889407	0.100	0.200#	66.7*	2,4-DDT
9.716	0.000	311148	10.260	0.000	267695	0.100	0.100	0.0	4,4-DDE
10.280	0.000	181479	10.709	0.000	889407	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /220414.b/04142243ECD7.D ARI ID: DDT BD

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
9.298	0.001	3395	9.964	0.009	22291	0.002	0.005	67.4*	2,4-DDE
0.000	-10.335	0	10.722	0.012	83068	0.000	0.015#	----	2,4-DDT
9.719	0.003	15554	10.265	0.005	16606	0.005	0.005	8.9	4,4-DDE
10.285	0.006	35518	10.722	0.012	83068	0.018	0.015#	17.3	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
Client: HydroGeoLogic, Inc.
Calibration: FD00045
Sequence: SKD0226

SDG: 22E0325
Project: Portland Harbor Superfund Site 2021-2022
Laboratory ID: SKD0226-SCV1
Sequence Name: AR1660SCV1
Standard ID: K001263

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1016	250.00	236	-5.6	20.00
Aroclor 1016 [2C]	250.00	237	-5.3	20.00
Aroclor 1260	250.00	313	25.1 *	20.00
Aroclor 1260 [2C]	250.00	327	30.9 *	20.00
Decachlorobiphenyl	40.000	41.0	2.6	20.00
Tetrachlorometaxylene	40.000	41.6	4.1	20.00
Decachlorobiphenyl [2C]	40.000	47.6	18.9	20.00
Tetrachlorometaxylene [2C]	40.000	40.4	1.1	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142236ECD7.D
Data file 2: /220414.b/220414.b/04142236ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 15-APR-2022 02:41
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.000	252816	5.748	-0.000	451594	41.6	40.4	2.9	Tetrachloro-m-xylene
13.931	0.000	219286	14.180	-0.002	1114764	41.0	47.6	14.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	452418	-6.9
Hexabromobiphenyl	571136	515306	-9.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	876156	-4.2
Hexabromobiphenyl	1789656	1601839	-10.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.316	0.001	39155	236.8	1	7.311	0.001	112706	237.6
Aroclor-1016	2	7.689	0.000	132942	235.4	2	7.903	-0.000	252843	235.1
Aroclor-1016	3	7.828	0.002	51772	235.1	3	8.102	0.001	98249	234.6
Aroclor-1016	4	7.934	0.001	35787	236.8	4	8.272	0.001	59627	239.5
Total Col1Ave (4 peaks):					236.0	Total Col2Ave (4 peaks):				236.7 RPD = 0
Corrected Ave (3 peaks):					235.8	Corrected Ave (3 peaks):				235.7 RPD = 0
Aroclor-1221	1	4.793	0.002	281	7.8	1	5.026	0.001	383	7.0
Aroclor-1221	2	6.181	-0.001	5320	85.4	2	6.359	0.004	13262	102.4
Aroclor-1221	3	6.430	0.000	28064	191.1	3	6.678	0.001	46208	197.1
Total Col1Ave (3 peaks):					94.8	Total Col2Ave (3 peaks):				102.1 RPD = 8
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.793	-0.002	281	13.1	1	5.026	-0.003	383	11.7
Aroclor-1232	2	6.181	-0.003	5320	128.0	2	7.311	-0.001	112706	555.5
Aroclor-1232	3	7.689	-0.001	132942	604.8	3	7.903	-0.002	252843	606.6
Aroclor-1232	4	8.615	-0.001	48435	631.2	4	8.765	-0.002	77662	665.6
Total Col1Ave (4 peaks):					344.3	Total Col2Ave (4 peaks):				459.8 RPD = 29
Corrected Ave (3 peaks):					248.6	Corrected Ave (3 peaks):				391.3 RPD = 45*
Aroclor-1242	1	7.316	0.001	39155	311.6	1	7.311	0.001	112706	306.3
Aroclor-1242	2	7.689	0.001	132942	317.1	2	7.903	0.000	252843	309.9
Aroclor-1242	3	9.032	0.006	29784	182.4	3	9.279	-0.004	7937	31.7
Aroclor-1242	4	9.258	-0.001	4156	30.1	4	9.627	-0.001	3306	11.0
Total Col1Ave (4 peaks):					210.3	Total Col2Ave (4 peaks):				164.7 RPD = 24
Corrected Ave (3 peaks):					174.7	Corrected Ave (3 peaks):				116.4 RPD = 40*
Aroclor-1248	1	8.444	-0.000	39715	191.4	1	8.358	-0.000	69011	186.9
Aroclor-1248	2	8.615	0.001	48435	202.6	2	8.765	-0.000	77662	187.2
Aroclor-1248	3	9.032	0.005	29784	98.0	3	9.167	-0.034	38251	63.1
Aroclor-1248	4	9.258	-0.000	4156	17.8	4	9.627	0.003	3306	5.8
Total Col1Ave (4 peaks):					127.5	Total Col2Ave (4 peaks):				110.7 RPD = 14
Corrected Ave (3 peaks):					102.4	Corrected Ave (3 peaks):				85.3 RPD = 18
Aroclor-1254	1	9.334	0.001	26649	74.1	1	9.500	-0.001	48404	83.2
Aroclor-1254	2	9.409	-0.001	503	4.0	2	9.932	0.002	760	3.4
Aroclor-1254	3	9.700	-0.000	3727	16.2	3	10.021	0.001	6185	13.3
Aroclor-1254	4	9.832	-0.003	11828	27.2	4	10.199	0.027	136275	132.5
Aroclor-1254	5	10.156	-0.023	86687	186.8	5	10.618	-0.001	243552	517.5
Total Col1Ave (5 peaks):					61.7	Total Col2Ave (5 peaks):				150.0 RPD = 83*
Corrected Ave (4 peaks):					30.4	Corrected Ave (4 peaks):				58.1 RPD = 63*
Aroclor-1260	1	11.080	0.001	78017	320.3	1	11.707	-0.001	209861	316.6
Aroclor-1260	2	11.473	0.002	40713	309.5	2	11.969	-0.001	556382	318.6
Aroclor-1260	3	11.766	0.000	181742	312.1	3	12.555	0.001	369030	318.4
Aroclor-1260	4	12.168	0.001	89051	301.6	4	13.280	0.002	171134	355.5
Aroclor-1260	5	12.280	0.002	40190	320.6	NS	---			----
Total Col1Ave (5 peaks):					312.8	Total Col2Ave (4 peaks):				327.3 RPD = 5
Corrected Ave (4 peaks):					310.9	Corrected Ave (3 peaks):				317.9 RPD = 2
Aroclor-1262	1	10.855	-0.000	119501	534.9	1	11.253	-0.001	206140	195.3
Aroclor-1262	2	12.280	-0.001	40190	139.5	2	11.707	0.000	209861	233.1
Aroclor-1262	3	12.354	-0.000	48033	162.5	3	12.490	0.000	159577	153.5
Aroclor-1262	4	13.020	-0.000	45464	185.0	4	13.280	0.000	171134	184.2
Total Col1Ave (4 peaks):					255.5	Total Col2Ave (4 peaks):				191.5 RPD = 29
Corrected Ave (3 peaks):					162.3	Corrected Ave (3 peaks):				177.7 RPD = 9
Aroclor-1268	1	12.280	-0.001	40190	51.1	1	12.490	0.001	159577	58.0
Aroclor-1268	2	12.354	0.002	48033	66.4	2	12.555	-0.000	369030	125.9
Aroclor-1268	3	12.759	0.021	24159	39.2	3	12.951	-0.001	5355	2.1
Aroclor-1268	4	13.523	-0.001	22467	12.2	4	13.763	-0.007	30550	3.0
Total Col1Ave (4 peaks):					42.2	Total Col2Ave (4 peaks):				47.3 RPD = 11

Corrected Ave (3 peaks): 34.2 Corrected Ave (3 peaks): 21.0 RPD = 48*

Total PCB Area Col1 (5.962 - 13.830) = 2067740 Col1 Total PCB = 0.6 ppm*

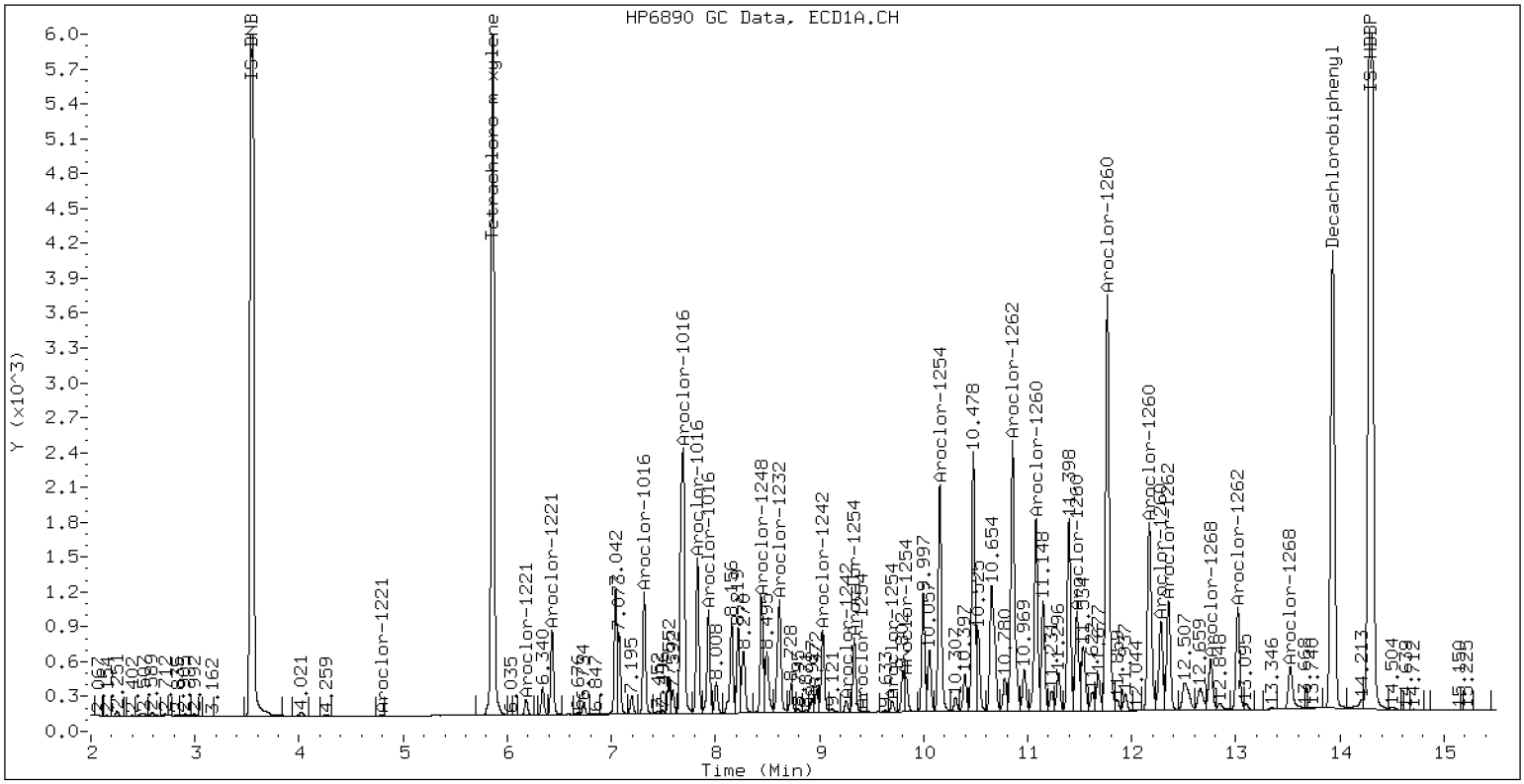
Total PCB Area Col2 (5.962 - 13.830) = 4680573 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

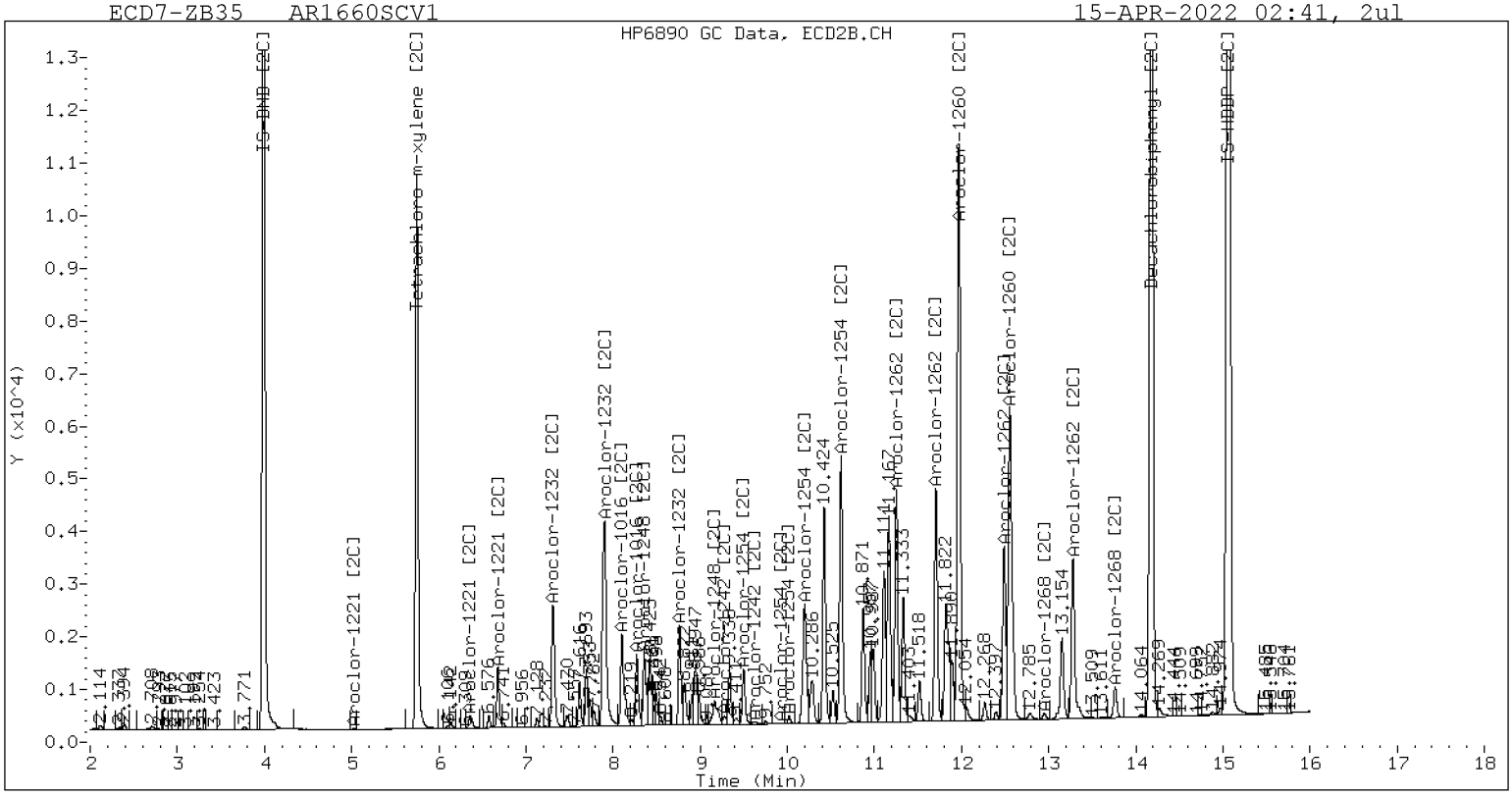
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 15-APR-2022 02:41, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 15-APR-2022 02:41, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
Client: HydroGeoLogic, Inc.
Calibration: FD00045
Sequence: SKD0226

SDG: 22E0325
Project: Portland Harbor Superfund Site 2021-2022
Laboratory ID: SKD0226-SCV2
Sequence Name: AR1242SCV2
Standard ID: K001264

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1242	250.00	254	1.4	20.00
Aroclor 1242 [2C]	250.00	244	-2.4	20.00
Decachlorobiphenyl	40.000	41.8	4.6	20.00
Tetrachlorometaxylene	40.000	40.9	2.2	20.00
Decachlorobiphenyl [2C]	40.000	48.3	20.8 *	20.00
Tetrachlorometaxylene [2C]	40.000	39.7	-0.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142237ECD7.D
Data file 2: /220414.b/220414.b/04142237ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 15-APR-2022 03:03
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	250840	5.747	-0.001	447055	40.9	39.7	2.8	Tetrachloro-m-xylene
13.931	0.000	224038	14.180	-0.002	1131332	41.8	48.3	14.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	457203	-5.9
Hexabromobiphenyl	571136	516535	-9.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	882202	-3.6
Hexabromobiphenyl	1789656	1599222	-10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	30901	184.9	1	7.311	-0.000	87985	184.2
Aroclor-1016	2	7.689	-0.000	104195	182.6	2	7.902	-0.001	196406	181.3
Aroclor-1016	3	7.827	0.001	40928	183.9	3	8.102	0.001	76906	182.4
Aroclor-1016	4	7.934	0.001	28237	184.9	4	8.273	0.001	46478	185.4
Total Col1Ave (4 peaks):				184.1		Total Col2Ave (4 peaks):			183.3	RPD = 0
Corrected Ave (3 peaks):				183.8		Corrected Ave (3 peaks):			182.6	RPD = 1
Aroclor-1221	1	4.795	0.003	192	5.3	1	5.028	0.003	294	5.4
Aroclor-1221	2	6.182	-0.001	4229	67.2	2	6.360	0.006	11366	87.1
Aroclor-1221	3	6.430	0.000	21916	147.7	3	6.678	0.001	35753	151.4
Total Col1Ave (3 peaks):				73.4		Total Col2Ave (3 peaks):			81.3	RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.795	-0.000	192	8.9	1	5.028	-0.001	294	8.9
Aroclor-1232	2	6.182	-0.002	4229	100.7	2	7.311	-0.001	87985	430.7
Aroclor-1232	3	7.689	-0.001	104195	469.0	3	7.902	-0.003	196406	468.0
Aroclor-1232	4	8.614	-0.002	40620	523.9	4	8.766	-0.002	64017	544.9
Total Col1Ave (4 peaks):				275.6		Total Col2Ave (4 peaks):			363.1	RPD = 27
Corrected Ave (3 peaks):				192.9		Corrected Ave (3 peaks):			302.5	RPD = 44*
Aroclor-1242	1	7.315	0.000	30901	243.4	1	7.311	0.000	87985	237.5
Aroclor-1242	2	7.689	-0.000	104195	245.9	2	7.902	-0.001	196406	239.1
Aroclor-1242	3	9.026	-0.000	44303	268.5	3	9.280	-0.002	60652	240.9
Aroclor-1242	4	9.257	-0.001	35741	256.3	4	9.626	-0.002	78397	258.2
Total Col1Ave (4 peaks):				253.5		Total Col2Ave (4 peaks):			243.9	RPD = 4
Corrected Ave (3 peaks):				248.5		Corrected Ave (3 peaks):			239.2	RPD = 4
Aroclor-1248	1	8.444	-0.000	32887	156.8	1	8.359	0.000	56178	151.1
Aroclor-1248	2	8.614	-0.000	40620	168.2	2	8.766	-0.000	64017	153.2
Aroclor-1248	3	9.026	-0.001	44303	144.3	3	9.201	-0.000	81541	133.7
Aroclor-1248	4	9.257	-0.001	35741	151.8	4	9.626	0.001	78397	135.6
Total Col1Ave (4 peaks):				155.3		Total Col2Ave (4 peaks):			143.4	RPD = 8
Corrected Ave (3 peaks):				151.0		Corrected Ave (3 peaks):			140.1	RPD = 7
Aroclor-1254	1	9.332	-0.002	18681	51.4	1	9.498	-0.002	22798	38.9
Aroclor-1254	2	9.409	-0.001	8334	66.3	2	9.930	0.000	12088	53.9
Aroclor-1254	3	9.699	-0.001	11878	50.9	3	10.020	-0.000	20344	43.6
Aroclor-1254	4	9.835	-0.000	19768	45.0	4	10.172	-0.000	40681	39.3
Aroclor-1254	5	10.182	0.002	17749	37.8	5	10.620	0.002	9125	19.3
Total Col1Ave (5 peaks):				50.3		Total Col2Ave (5 peaks):			39.0	RPD = 25
Corrected Ave (4 peaks):				46.3		Corrected Ave (4 peaks):			35.3	RPD = 27
Aroclor-1260	1	11.081	0.002	779	3.2	1	11.713	0.005	4935	7.5
Aroclor-1260	2	11.478	0.007	346	2.6	2	11.973	0.003	3104	1.8
Aroclor-1260	3	11.767	0.001	1742	3.0	3	12.558	0.004	2070	1.8
Aroclor-1260	4	12.172	0.004	845	2.9	4	13.282	0.004	622	1.3
Aroclor-1260	5	12.285	0.006	103	0.8	NS	---			----
Total Col1Ave (5 peaks):				2.5		Total Col2Ave (4 peaks):			3.1	RPD = 21
Corrected Ave (4 peaks):				2.3		Corrected Ave (3 peaks):			1.6	RPD = 35
Aroclor-1262	1	10.858	0.002	8956	40.0	1	11.252	-0.002	1199	1.1
Aroclor-1262	2	12.285	0.004	103	0.4	2	11.713	0.006	4935	5.5
Aroclor-1262	3	12.357	0.003	189	0.6	3	12.490	0.000	1093	1.1
Aroclor-1262	4	13.019	-0.001	484	2.0	4	13.282	0.002	622	0.7
Total Col1Ave (4 peaks):				10.7		Total Col2Ave (4 peaks):			2.1	RPD = 135*
Corrected Ave (3 peaks):				1.0		Corrected Ave (3 peaks):			1.0	RPD = 3
Aroclor-1268	1	12.285	0.004	103	0.1	1	12.490	0.002	1093	0.4
Aroclor-1268	2	12.357	0.006	189	0.3	2	12.558	0.003	2070	0.7
Aroclor-1268	3	12.659	-0.078	17439	28.2	3	12.955	0.004	1608	0.6
Aroclor-1268	4	13.525	0.000	12680	6.9	4	13.765	-0.005	2247	0.2
Total Col1Ave (4 peaks):				8.9		Total Col2Ave (4 peaks):			0.5	RPD = 179*

Corrected Ave (3 peaks): 2.4 Corrected Ave (3 peaks): 0.4 RPD = 142*

Total PCB Area Col1 (5.962 - 13.830) = 840676 Col1 Total PCB = 0.2 ppm*

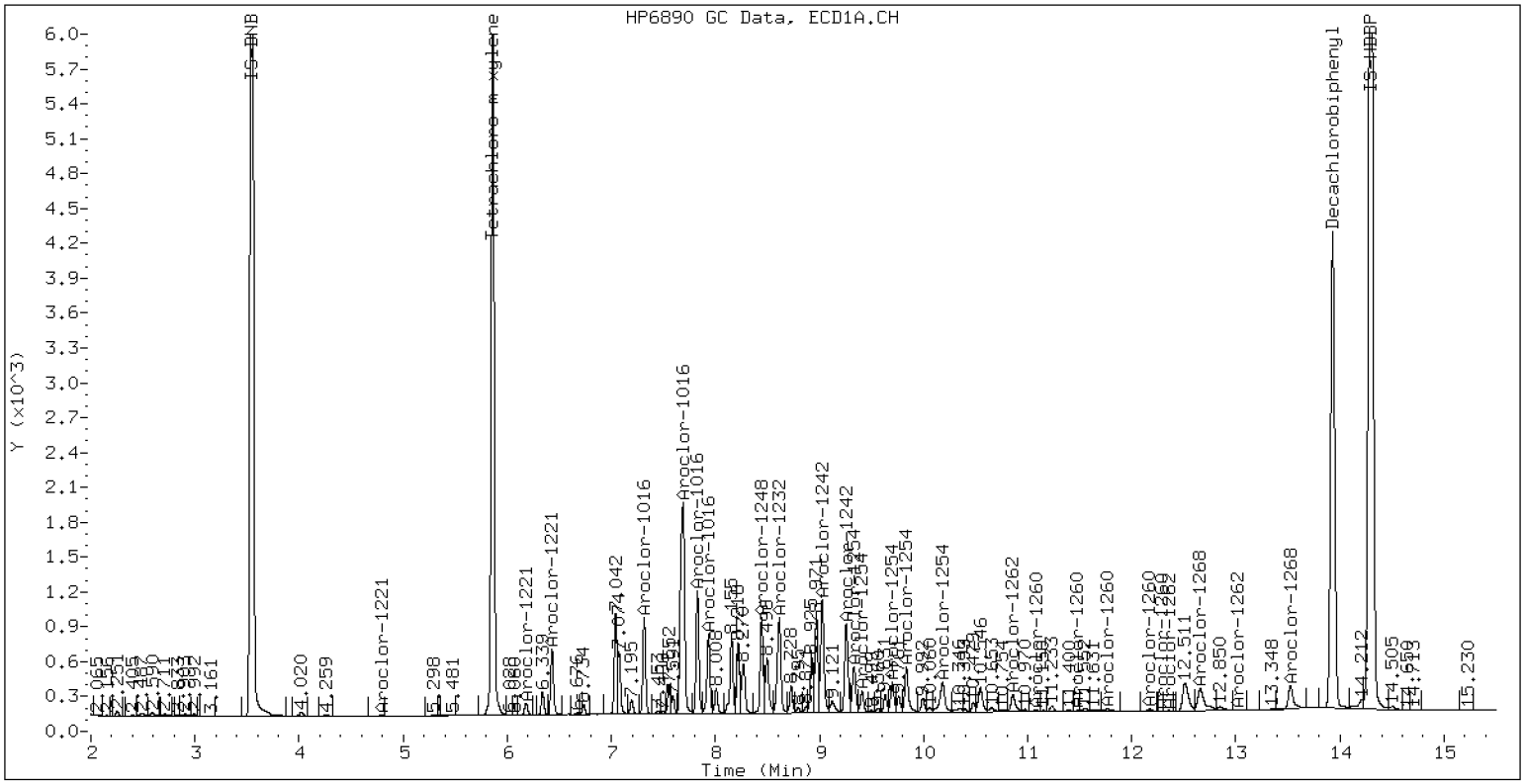
Total PCB Area Col2 (5.962 - 13.830) = 1466994 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

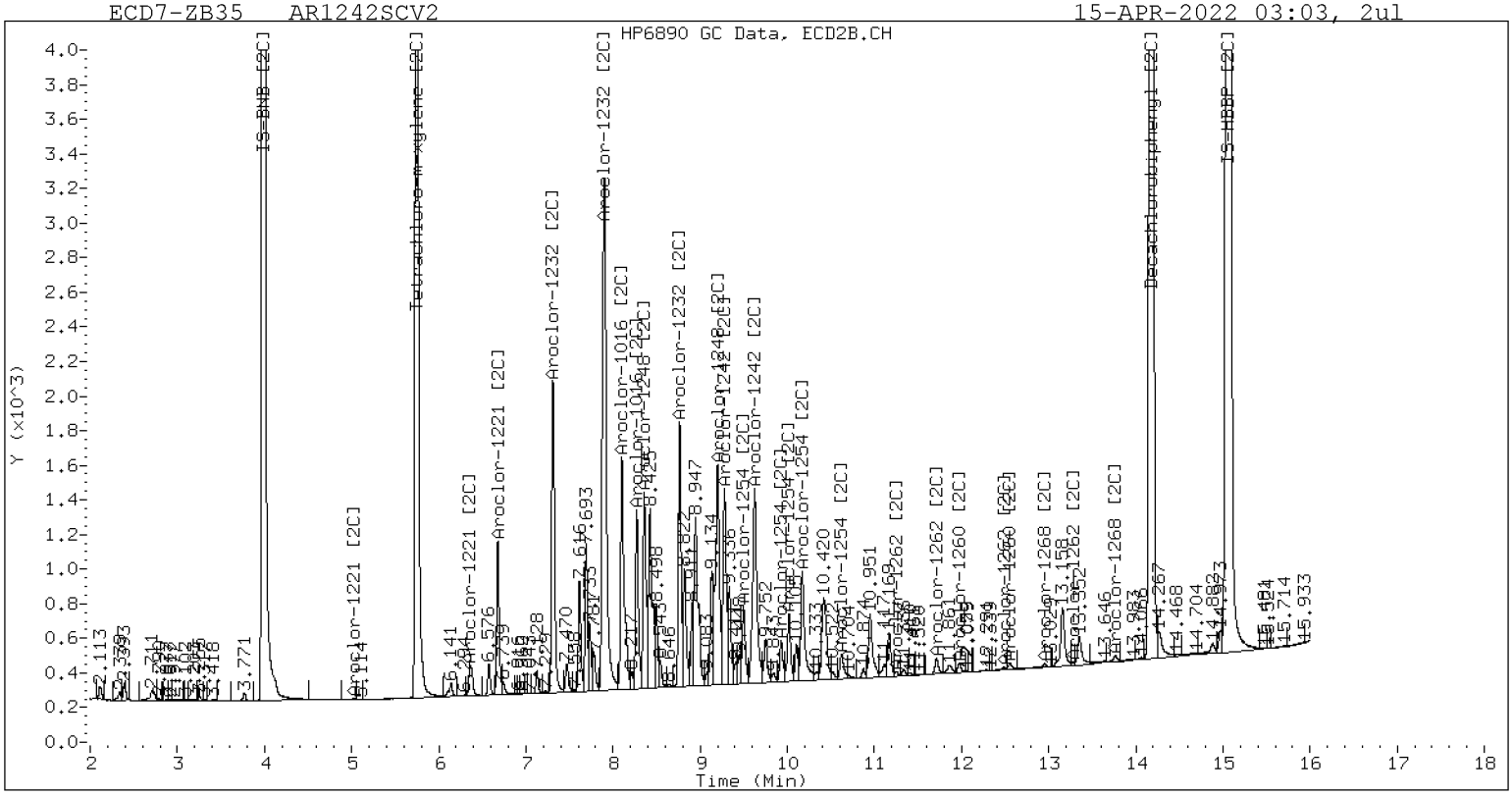
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 15-APR-2022 03:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 15-APR-2022 03:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
Client: HydroGeoLogic, Inc.
Calibration: FD00045
Sequence: SKD0226

SDG: 22E0325
Project: Portland Harbor Superfund Site 2021-2022
Laboratory ID: SKD0226-SCV3
Sequence Name: AR1248SCV3
Standard ID: K001265

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1248	250.00	259	3.4	20.00
Aroclor 1248 [2C]	250.00	252	0.9	20.00
Decachlorobiphenyl	40.000	41.0	2.5	20.00
Tetrachlorometaxylene	40.000	40.9	2.2	20.00
Decachlorobiphenyl [2C]	40.000	47.0	17.6	20.00
Tetrachlorometaxylene [2C]	40.000	40.2	0.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142238ECD7.D
Data file 2: /220414.b/220414.b/04142238ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 15-APR-2022 03:24
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	249665	5.746	-0.002	450379	40.9	40.2	1.5	Tetrachloro-m-xylene
13.930	-0.001	220306	14.180	-0.002	1106001	41.0	47.0	13.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	455246	-6.3
Hexabromobiphenyl	571136	518144	-9.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	877845	-4.1
Hexabromobiphenyl	1789656	1606747	-10.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.314	-0.001	13648	82.0	1	7.309	-0.002	40994	86.2
Aroclor-1016	2	7.686	-0.003	35475	62.4	2	7.899	-0.005	124769	115.8
Aroclor-1016	3	7.829	0.003	23045	104.0	3	8.102	0.001	26779	63.8
Aroclor-1016	4	7.933	0.000	15917	104.7	4	8.273	0.001	23331	93.5
Total Col1Ave (4 peaks): 88.3						Total Col2Ave (4 peaks): 89.8 RPD = 2				
Corrected Ave (3 peaks): 82.8						Corrected Ave (3 peaks): 81.2 RPD = 2				
Aroclor-1221	1	---			0.0	1	5.035	0.010	32	0.6
Aroclor-1221	2	6.179	-0.003	276	4.4	2	6.379	0.024	5431	41.8
Aroclor-1221	3	6.429	-0.001	2447	16.6	3	6.680	0.003	4703	20.0
Col1Ave: <3 Quant Peaks						Col2Ave: 20.8				
Aroclor-1232	1	---			0.0	1	5.035	0.006	32	1.0
Aroclor-1232	2	6.179	-0.005	276	6.6	2	7.309	-0.003	40994	201.7
Aroclor-1232	3	7.686	-0.004	35475	160.4	3	7.899	-0.006	124769	298.8
Aroclor-1232	4	8.614	-0.002	62069	803.9	4	8.766	-0.002	106076	907.3
Total Col1Ave (3 peaks): 323.6						Total Col2Ave (4 peaks): 352.2 RPD = 8				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 167.1				
Aroclor-1242	1	7.314	-0.000	13648	107.9	1	7.309	-0.002	40994	111.2
Aroclor-1242	2	7.686	-0.003	35475	84.1	2	7.899	-0.004	124769	152.6
Aroclor-1242	3	9.027	0.000	79127	481.6	3	9.279	-0.004	110745	442.0
Aroclor-1242	4	9.257	-0.001	61014	439.4	4	9.624	-0.004	146393	484.6
Total Col1Ave (4 peaks): 278.3						Total Col2Ave (4 peaks): 297.6 RPD = 7				
Corrected Ave (3 peaks): 210.5						Corrected Ave (3 peaks): 235.3 RPD = 11				
Aroclor-1248	1	8.444	-0.000	53684	257.1	1	8.359	-0.000	92883	251.0
Aroclor-1248	2	8.614	-0.000	62069	258.0	2	8.766	-0.000	106076	255.2
Aroclor-1248	3	9.027	-0.000	79127	258.8	3	9.201	-0.001	150647	248.2
Aroclor-1248	4	9.257	-0.001	61014	260.3	4	9.624	-0.000	146393	254.5
Total Col1Ave (4 peaks): 258.6						Total Col2Ave (4 peaks): 252.2 RPD = 2				
Corrected Ave (3 peaks): 258.0						Corrected Ave (3 peaks): 251.2 RPD = 3				
Aroclor-1254	1	9.331	-0.003	37207	102.9	1	9.499	-0.002	45011	77.2
Aroclor-1254	2	9.409	-0.001	17605	140.7	2	9.929	-0.000	29438	131.9
Aroclor-1254	3	9.699	-0.001	24882	107.2	3	10.020	-0.001	45029	96.9
Aroclor-1254	4	9.835	-0.000	40014	91.5	4	10.171	-0.001	84804	82.3
Aroclor-1254	5	10.182	0.003	30534	65.4	5	10.627	0.008	11336	24.0
Total Col1Ave (5 peaks): 101.5						Total Col2Ave (5 peaks): 82.5 RPD = 21				
Corrected Ave (4 peaks): 91.7						Corrected Ave (4 peaks): 70.1 RPD = 27				
Aroclor-1260	1	11.079	-0.000	637	2.6	1	11.712	0.005	5024	7.6
Aroclor-1260	2	11.481	0.010	136	1.0	2	11.974	0.004	3107	1.8
Aroclor-1260	3	11.768	0.002	1276	2.2	3	12.558	0.004	2099	1.8
Aroclor-1260	4	12.170	0.002	725	2.4	4	13.278	0.000	1011	2.1
Aroclor-1260	5	12.283	0.005	237	1.9	NS	---			----
Total Col1Ave (5 peaks): 2.0						Total Col2Ave (4 peaks): 3.3 RPD = 48*				
Corrected Ave (4 peaks): 1.9						Corrected Ave (3 peaks): 1.9 RPD = 0				
Aroclor-1262	1	10.857	0.001	8221	36.6	1	11.250	-0.004	1362	1.3
Aroclor-1262	2	12.283	0.002	237	0.8	2	11.712	0.005	5024	5.6
Aroclor-1262	3	12.357	0.003	283	1.0	3	12.486	-0.004	1723	1.7
Aroclor-1262	4	13.022	0.002	390	1.6	4	13.278	-0.001	1011	1.1
Total Col1Ave (4 peaks): 10.0						Total Col2Ave (4 peaks): 2.4 RPD = 123*				
Corrected Ave (3 peaks): 1.1						Corrected Ave (3 peaks): 1.3 RPD = 18				
Aroclor-1268	1	12.283	0.002	237	0.3	1	12.486	-0.002	1723	0.6
Aroclor-1268	2	12.357	0.005	283	0.4	2	12.558	0.003	2099	0.7
Aroclor-1268	3	12.738	0.000	2563	4.1	3	12.954	0.003	1316	0.5
Aroclor-1268	4	13.524	-0.000	13610	7.4	4	13.763	-0.006	2391	0.2
Total Col1Ave (4 peaks): 3.0						Total Col2Ave (4 peaks): 0.5 RPD = 142*				
Corrected Ave (3 peaks): 1.6						Corrected Ave (3 peaks): 0.5 RPD = 112*				

Total PCB Area Col1 (5.962 - 13.830) = 998454 Col1 Total PCB = 0.3 ppm*

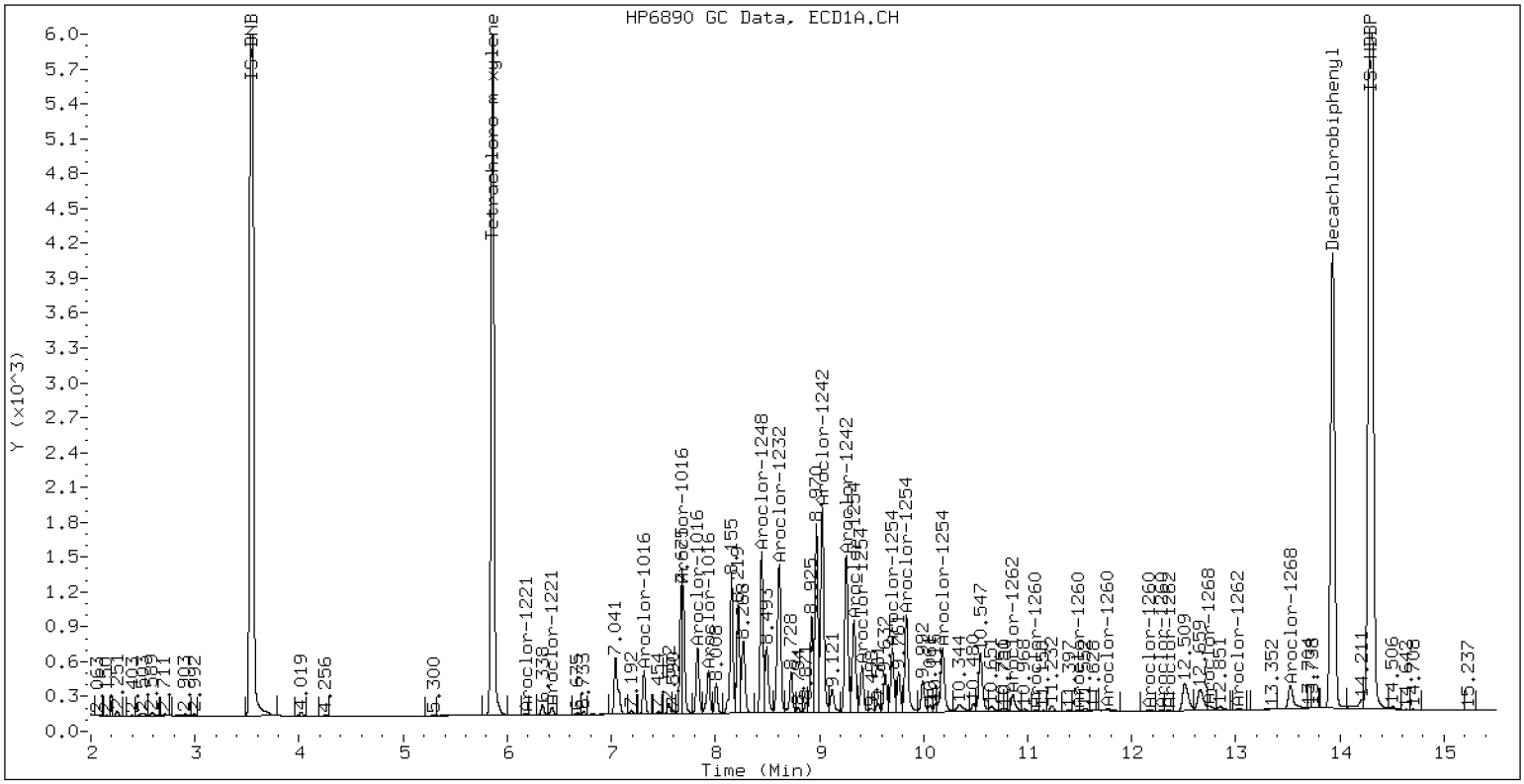
Total PCB Area Col2 (5.962 - 13.830) = 1832905 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

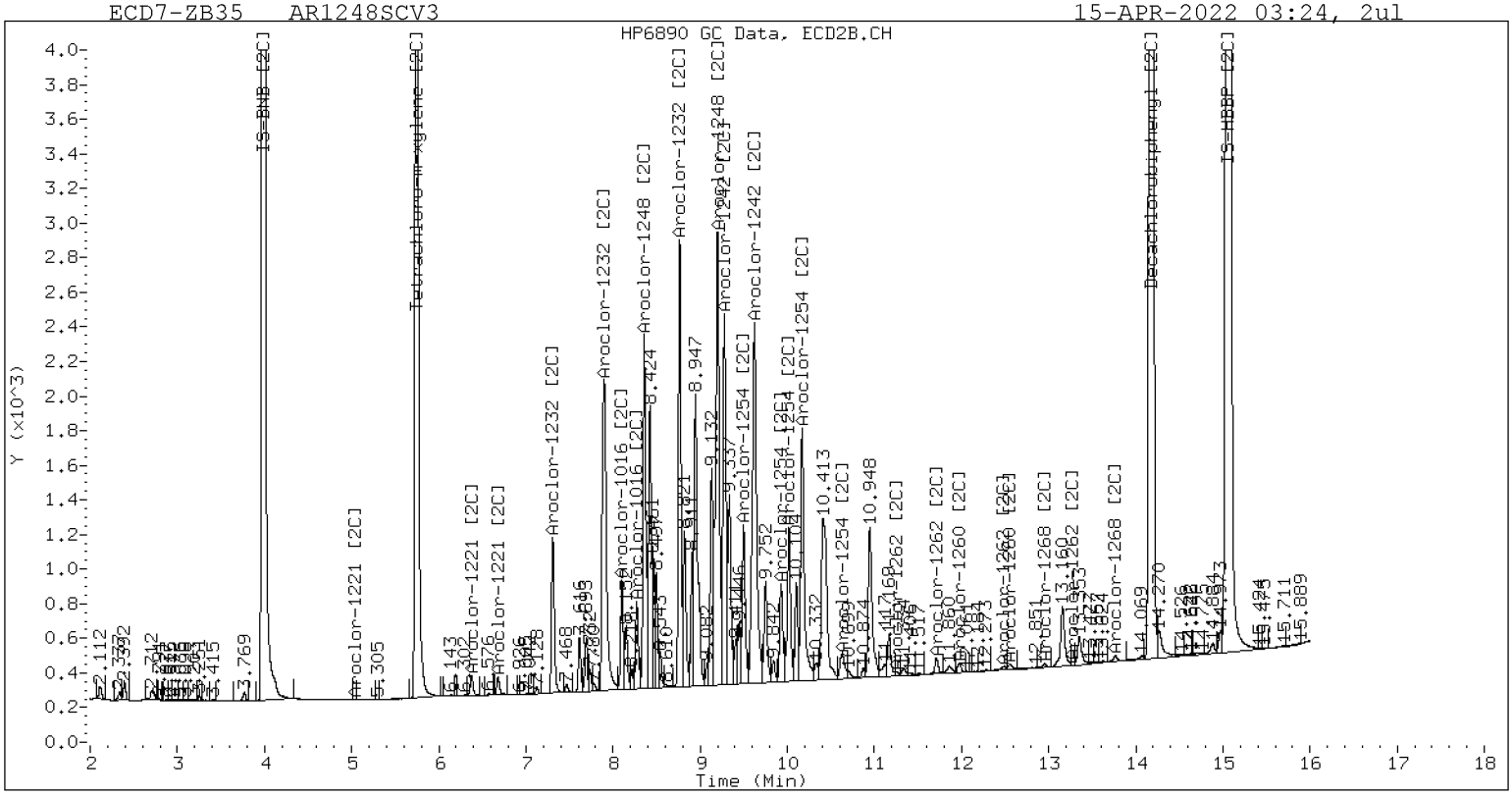
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 15-APR-2022 03:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 15-APR-2022 03:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
Client: HydroGeoLogic, Inc.
Calibration: FD00045
Sequence: SKD0226

SDG: 22E0325
Project: Portland Harbor Superfund Site 2021-2022
Laboratory ID: SKD0226-SCV4
Sequence Name: AR1254SCV4
Standard ID: K001266

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1254	250.00	260	4.0	20.00
Aroclor 1254 [2C]	250.00	253	1.3	20.00
Decachlorobiphenyl	40.000	40.7	1.6	20.00
Tetrachlorometaxylene	40.000	39.5	-1.2	20.00
Decachlorobiphenyl [2C]	40.000	46.7	16.7	20.00
Tetrachlorometaxylene [2C]	40.000	39.0	-2.5	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142239ECD7.D
Data file 2: /220414.b/220414.b/04142239ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 15-APR-2022 03:46
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	244794	5.748	-0.001	440425	39.5	39.0	1.3	Tetrachloro-m-xylene
13.933	0.002	218124	14.180	-0.001	1099415	40.7	46.7	13.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	461501	-5.0
Hexabromobiphenyl	571136	517452	-9.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	885861	-3.2
Hexabromobiphenyl	1789656	1609025	-10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	498	3.0	1	7.311	0.000	984	2.1
Aroclor-1016	2	7.675	-0.015	2273	3.9	2	7.901	-0.002	3244	3.0
Aroclor-1016	3	7.834	0.007	1217	5.4	3	8.107	0.006	531	1.3
Aroclor-1016	4	7.935	0.002	502	3.3	4	8.276	0.004	423	1.7
Total Col1Ave (4 peaks):					3.9	Total Col2Ave (4 peaks):				2.0 RPD = 65*
Corrected Ave (3 peaks):					3.4	Corrected Ave (3 peaks):				1.7 RPD = 68*
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.379	0.025	4779	36.5
Aroclor-1221	3	---			0.0	3	6.690	0.012	1256	5.3
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.311	-0.001	984	4.8
Aroclor-1232	3	7.675	-0.016	2273	10.1	3	7.901	-0.004	3244	7.7
Aroclor-1232	4	8.615	-0.001	8410	107.4	4	8.767	-0.000	36342	308.0
Col1Ave: <3 Quant Peaks						Col2Ave: 106.8				
Aroclor-1242	1	7.315	0.000	498	3.9	1	7.311	0.000	984	2.6
Aroclor-1242	2	7.675	-0.014	2273	5.3	2	7.901	-0.002	3244	3.9
Aroclor-1242	3	9.032	0.006	67072	402.7	3	9.278	-0.004	16087	63.6
Aroclor-1242	4	9.257	-0.001	20987	149.1	4	9.593	-0.035	76693	251.6
Total Col1Ave (4 peaks):					140.2	Total Col2Ave (4 peaks):				80.4 RPD = 54*
Corrected Ave (3 peaks):					52.8	Corrected Ave (3 peaks):				23.4 RPD = 77*
Aroclor-1248	1	8.445	0.000	18624	88.0	1	8.359	0.000	57095	152.9
Aroclor-1248	2	8.615	0.001	8410	34.5	2	8.767	0.002	36342	86.6
Aroclor-1248	3	9.032	0.006	67072	216.4	3	9.204	0.002	55368	90.4
Aroclor-1248	4	9.257	-0.001	20987	88.3	4	9.593	-0.031	76693	132.1
Total Col1Ave (4 peaks):					106.8	Total Col2Ave (4 peaks):				115.5 RPD = 8
Corrected Ave (3 peaks):					70.3	Corrected Ave (3 peaks):				103.0 RPD = 38
Aroclor-1254	1	9.333	-0.001	95176	259.6	1	9.499	-0.001	150129	255.1
Aroclor-1254	2	9.409	-0.000	33089	260.8	2	9.929	-0.001	57114	253.7
Aroclor-1254	3	9.699	-0.001	61588	261.7	3	10.020	-0.000	118253	252.3
Aroclor-1254	4	9.834	-0.001	112462	253.6	4	10.170	-0.002	258020	248.1
Aroclor-1254	5	10.178	-0.002	125132	264.3	5	10.618	-0.001	122384	257.2
Total Col1Ave (5 peaks):					260.0	Total Col2Ave (5 peaks):				253.3 RPD = 3
Corrected Ave (4 peaks):					258.9	Corrected Ave (4 peaks):				252.3 RPD = 3
Aroclor-1260	1	11.079	-0.000	5854	23.9	1	11.711	0.004	70801	106.4
Aroclor-1260	2	11.474	0.003	3683	27.9	2	11.972	0.002	43594	24.9
Aroclor-1260	3	11.767	0.001	14165	24.2	3	12.555	0.001	28563	24.5
Aroclor-1260	4	12.170	0.002	12902	43.5	4	13.280	0.002	1731	3.6
Aroclor-1260	5	12.283	0.004	400	3.2	NS	---			----
Total Col1Ave (5 peaks):					24.5	Total Col2Ave (4 peaks):				39.8 RPD = 47*
Corrected Ave (4 peaks):					19.8	Corrected Ave (3 peaks):				17.7 RPD = 11
Aroclor-1262	1	10.856	0.000	112936	503.4	1	11.252	-0.002	11740	11.1
Aroclor-1262	2	12.283	0.002	400	1.4	2	11.711	0.005	70801	78.3
Aroclor-1262	3	12.354	0.000	626	2.1	3	12.498	0.008	4978	4.8
Aroclor-1262	4	13.021	0.001	1005	4.1	4	13.280	0.000	1731	1.9
Total Col1Ave (4 peaks):					127.7	Total Col2Ave (4 peaks):				24.0 RPD = 137*
Corrected Ave (3 peaks):					2.5	Corrected Ave (3 peaks):				5.9 RPD = 80*
Aroclor-1268	1	12.283	0.002	400	0.5	1	12.498	0.010	4978	1.8
Aroclor-1268	2	12.354	0.003	626	0.9	2	12.555	-0.001	28563	9.7
Aroclor-1268	3	12.744	0.007	3057	4.9	3	12.953	0.002	1289	0.5
Aroclor-1268	4	13.526	0.001	12793	6.9	4	13.766	-0.003	2227	0.2
Total Col1Ave (4 peaks):					3.3	Total Col2Ave (4 peaks):				3.1 RPD = 8
Corrected Ave (3 peaks):					2.1	Corrected Ave (3 peaks):				0.8 RPD = 86*

Total PCB Area Col1 (5.962 - 13.830) = 1218996 Col1 Total PCB = 0.3 ppm*

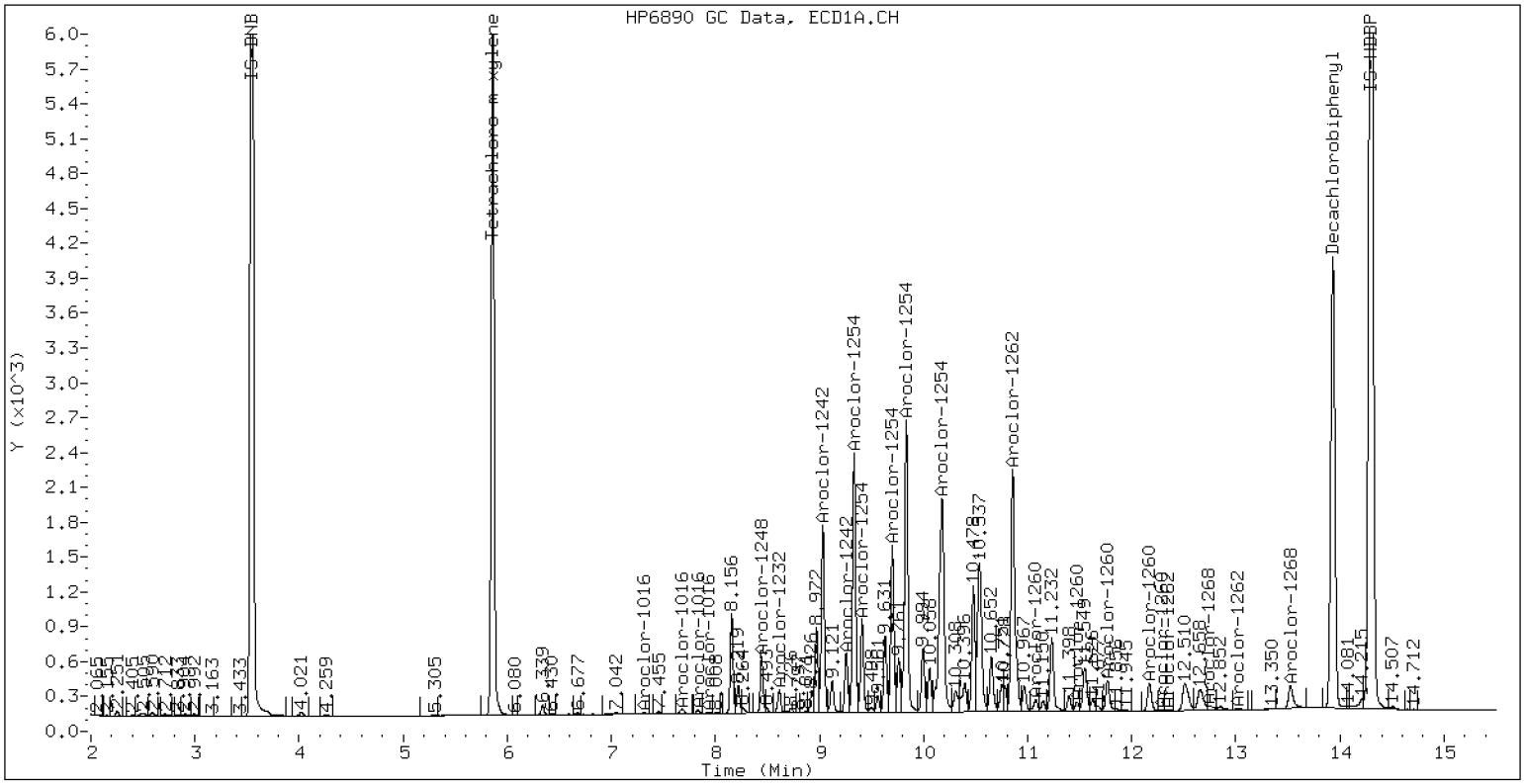
Total PCB Area Col2 (5.962 - 13.830) = 2421904 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

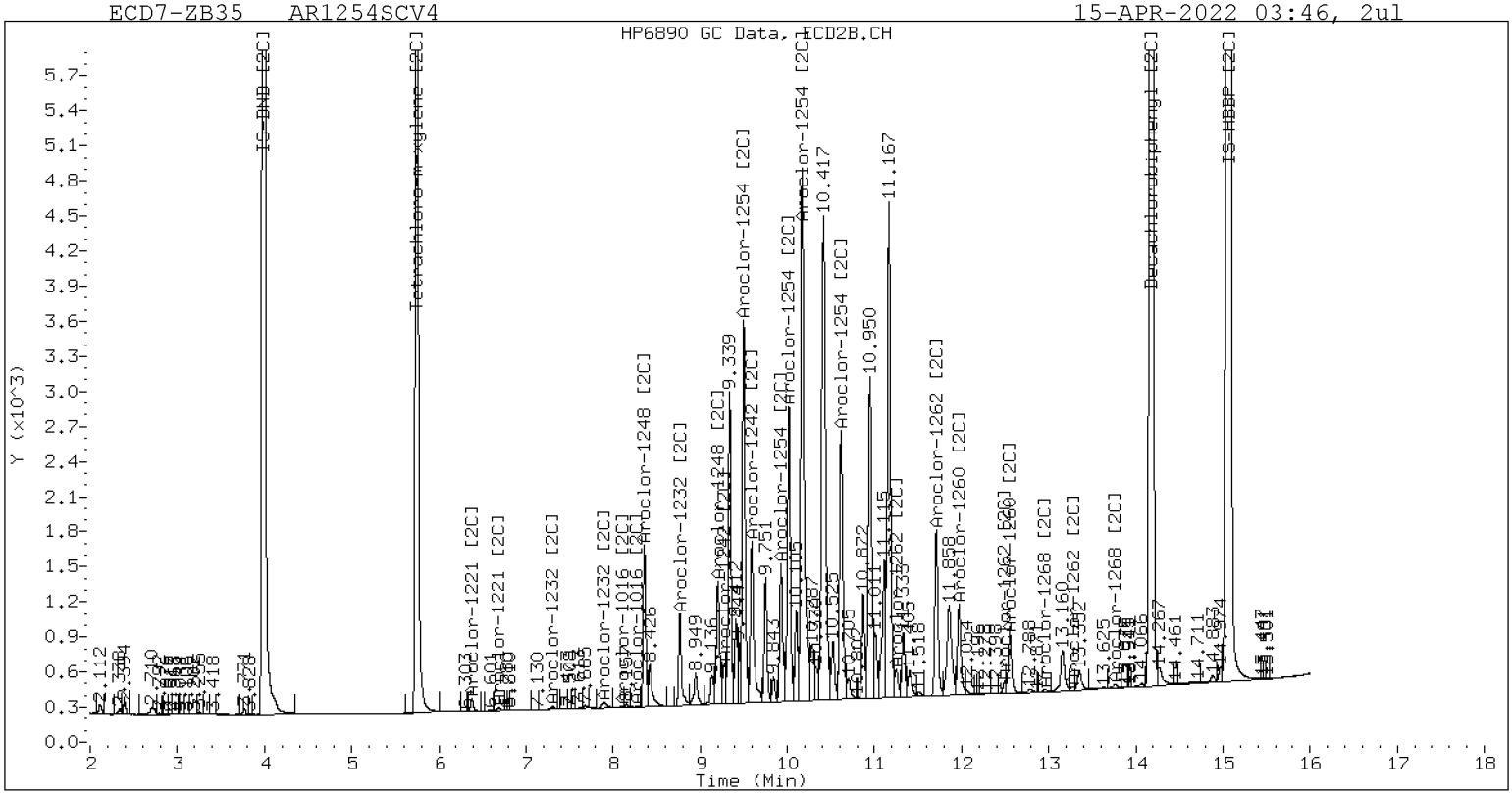
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 15-APR-2022 03:46, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 15-APR-2022 03:46, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
Client: HydroGeoLogic, Inc.
Calibration: FD00045
Sequence: SKD0226

SDG: 22E0325
Project: Portland Harbor Superfund Site 2021-2022
Laboratory ID: SKD0226-SCV5
Sequence Name: AR2162SCV5
Standard ID: K001267

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1221	250.00	271	8.6	20.00
Aroclor 1221 [2C]	250.00	269	7.6	20.00
Aroclor 1262	500.00	530	6.0	20.00
Aroclor 1262 [2C]	500.00	552	10.5	20.00
Decachlorobiphenyl	40.000	41.9	4.6	20.00
Tetrachlorometaxylene	40.000	40.6	1.5	20.00
Decachlorobiphenyl [2C]	40.000	47.8	19.5	20.00
Tetrachlorometaxylene [2C]	40.000	39.6	-1.1	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142240ECD7.D
Data file 2: /220414.b/220414.b/04142240ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 15-APR-2022 04:08
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.002	251744	5.746	-0.002	439972	40.6	39.6	2.7	Tetrachloro-m-xylene
13.930	-0.000	223936	14.180	-0.002	1114196	41.9	47.8	13.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	461787	-5.0
Hexabromobiphenyl	571136	516078	-9.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	872531	-4.6
Hexabromobiphenyl	1789656	1592530	-11.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	-0.000	4368	25.9	1	7.316	0.005	19564	41.4
Aroclor-1016	2	7.689	-0.000	12825	22.3	2	7.904	0.000	21712	20.3
Aroclor-1016	3	7.827	0.001	5512	24.5	3	8.104	0.004	9298	22.3
Aroclor-1016	4	7.934	0.001	3435	22.3	4	8.275	0.003	5173	20.9
Total Col1Ave (4 peaks):					23.7	Total Col2Ave (4 peaks):				26.2 RPD = 10
Corrected Ave (3 peaks):					23.0	Corrected Ave (3 peaks):				21.1 RPD = 8
Aroclor-1221	1	4.792	-0.000	10282	279.6	1	5.025	-0.000	15397	283.7
Aroclor-1221	2	6.182	-0.000	16953	266.5	2	6.354	-0.000	33652	260.8
Aroclor-1221	3	6.429	-0.001	40197	268.2	3	6.677	-0.001	61352	262.7
Total Col1Ave (3 peaks):					271.4	Total Col2Ave (3 peaks):				269.1 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.792	-0.003	10282	470.9	1	5.025	-0.005	15397	470.6
Aroclor-1232	2	6.182	-0.002	16953	399.5	2	7.316	0.004	19564	96.8
Aroclor-1232	3	7.689	-0.001	12825	57.2	3	7.904	-0.001	21712	52.3
Aroclor-1232	4	8.615	-0.001	2735	34.9	4	8.767	-0.000	5111	44.0
Total Col1Ave (4 peaks):					240.6	Total Col2Ave (4 peaks):				165.9 RPD = 37
Corrected Ave (3 peaks):					163.9	Corrected Ave (3 peaks):				64.4 RPD = 87*
Aroclor-1242	1	7.315	-0.000	4368	34.1	1	7.316	0.005	19564	53.4
Aroclor-1242	2	7.689	0.000	12825	30.0	2	7.904	0.001	21712	26.7
Aroclor-1242	3	9.033	0.006	22237	133.4	3	9.283	0.001	3130	12.6
Aroclor-1242	4	9.258	-0.000	4243	30.1	4	9.625	-0.003	5102	17.0
Total Col1Ave (4 peaks):					56.9	Total Col2Ave (4 peaks):				27.4 RPD = 70*
Corrected Ave (3 peaks):					31.4	Corrected Ave (3 peaks):				18.8 RPD = 50*
Aroclor-1248	1	8.445	0.000	3005	14.2	1	8.360	0.001	6560	17.8
Aroclor-1248	2	8.615	0.001	2735	11.2	2	8.767	0.002	5111	12.4
Aroclor-1248	3	9.033	0.006	22237	71.7	3	9.206	0.004	8926	14.8
Aroclor-1248	4	9.258	-0.000	4243	17.8	4	9.625	0.000	5102	8.9
Total Col1Ave (4 peaks):					28.7	Total Col2Ave (4 peaks):				13.5 RPD = 72*
Corrected Ave (3 peaks):					14.4	Corrected Ave (3 peaks):				12.0 RPD = 18
Aroclor-1254	1	9.334	0.000	24744	67.4	1	9.500	-0.001	43964	75.8
Aroclor-1254	2	9.409	-0.001	2115	16.7	2	9.929	-0.000	3004	13.5
Aroclor-1254	3	9.699	-0.001	4478	19.0	3	10.020	-0.001	7647	16.6
Aroclor-1254	4	9.801	-0.034	32946	74.2	4	10.199	0.027	227991	222.6
Aroclor-1254	5	10.156	-0.024	129022	272.4	5	10.617	-0.002	354885	757.2
Total Col1Ave (5 peaks):					89.9	Total Col2Ave (5 peaks):				217.1 RPD = 83*
Corrected Ave (4 peaks):					44.3	Corrected Ave (4 peaks):				82.1 RPD = 60*
Aroclor-1260	1	11.079	0.000	206461	846.2	1	11.707	-0.001	481868	731.3
Aroclor-1260	2	11.472	0.001	77947	591.7	2	11.969	-0.001	1196691	689.3
Aroclor-1260	3	11.766	0.000	376682	645.9	3	12.555	0.001	868104	753.4
Aroclor-1260	4	12.169	0.001	125898	425.8	4	13.279	0.001	528687	1104.7
Aroclor-1260	5	12.280	0.001	152283	1212.9	NS	---			----
Total Col1Ave (5 peaks):					744.5	Total Col2Ave (4 peaks):				819.7 RPD = 10
Corrected Ave (4 peaks):					627.4	Corrected Ave (3 peaks):				724.7 RPD = 14
Aroclor-1262	1	10.854	-0.002	119589	534.5	1	11.255	0.001	572977	546.0
Aroclor-1262	2	12.280	-0.001	152283	527.7	2	11.707	0.000	481868	538.4
Aroclor-1262	3	12.353	-0.001	156582	528.8	3	12.488	-0.001	570725	552.2
Aroclor-1262	4	13.019	-0.001	130025	528.4	4	13.279	-0.000	528687	572.4
Total Col1Ave (4 peaks):					529.9	Total Col2Ave (4 peaks):				552.3 RPD = 4
Corrected Ave (3 peaks):					528.3	Corrected Ave (3 peaks):				545.5 RPD = 3
Aroclor-1268	1	12.280	-0.001	152283	193.3	1	12.488	0.000	570725	208.8
Aroclor-1268	2	12.353	0.002	156582	216.0	2	12.555	-0.001	868104	297.9
Aroclor-1268	3	12.758	0.020	63836	103.4	3	12.949	-0.002	29404	11.5
Aroclor-1268	4	13.523	-0.002	57509	31.2	4	13.764	-0.005	166374	16.5
Total Col1Ave (4 peaks):					136.0	Total Col2Ave (4 peaks):				133.7 RPD = 2

Corrected Ave (3 peaks): 109.3 Corrected Ave (3 peaks): 78.9 RPD = 32

Total PCB Area Col1 (5.962 - 13.830) = 2802814 Col1 Total PCB = 0.7 ppm*

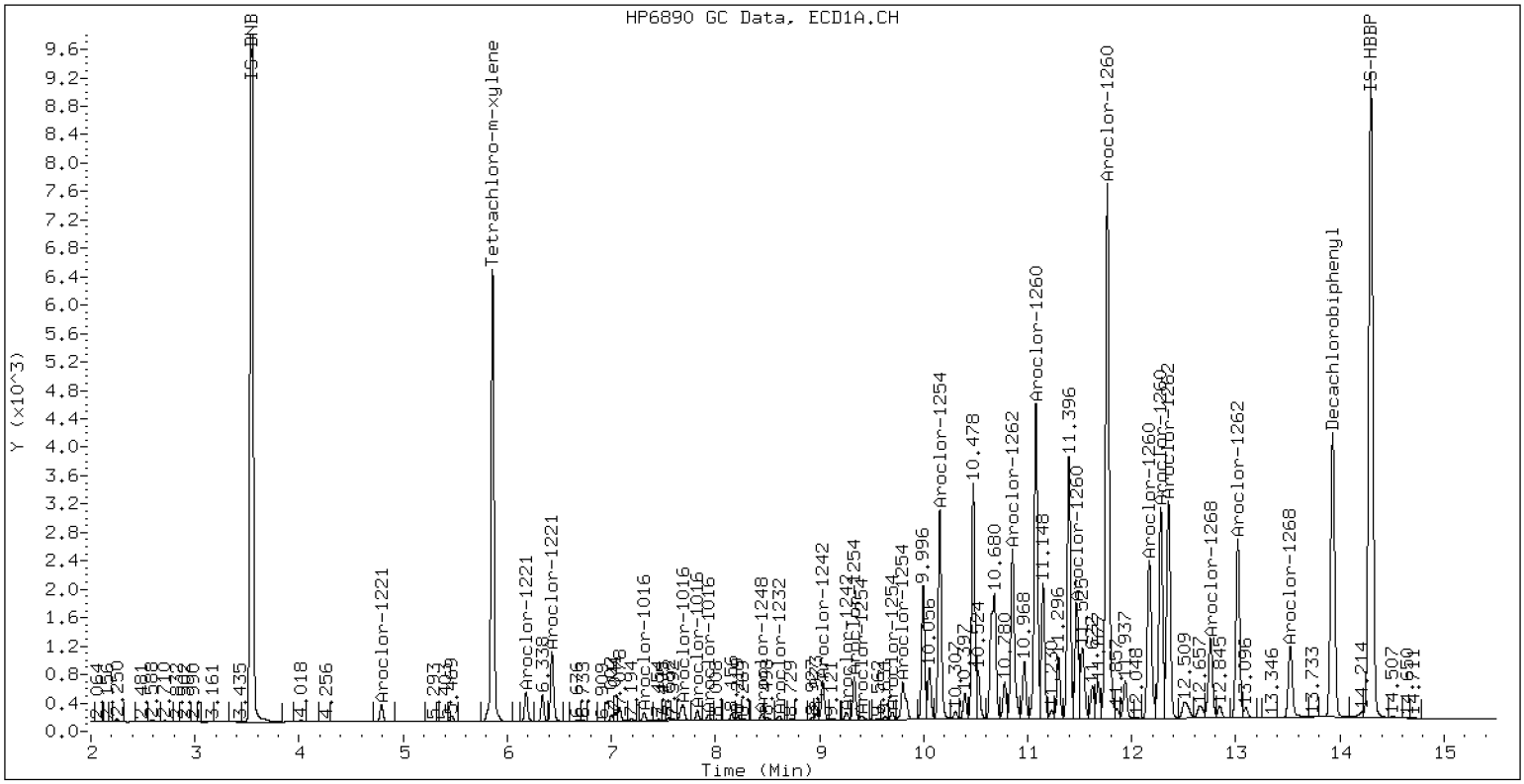
Total PCB Area Col2 (5.962 - 13.830) = 7568017 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

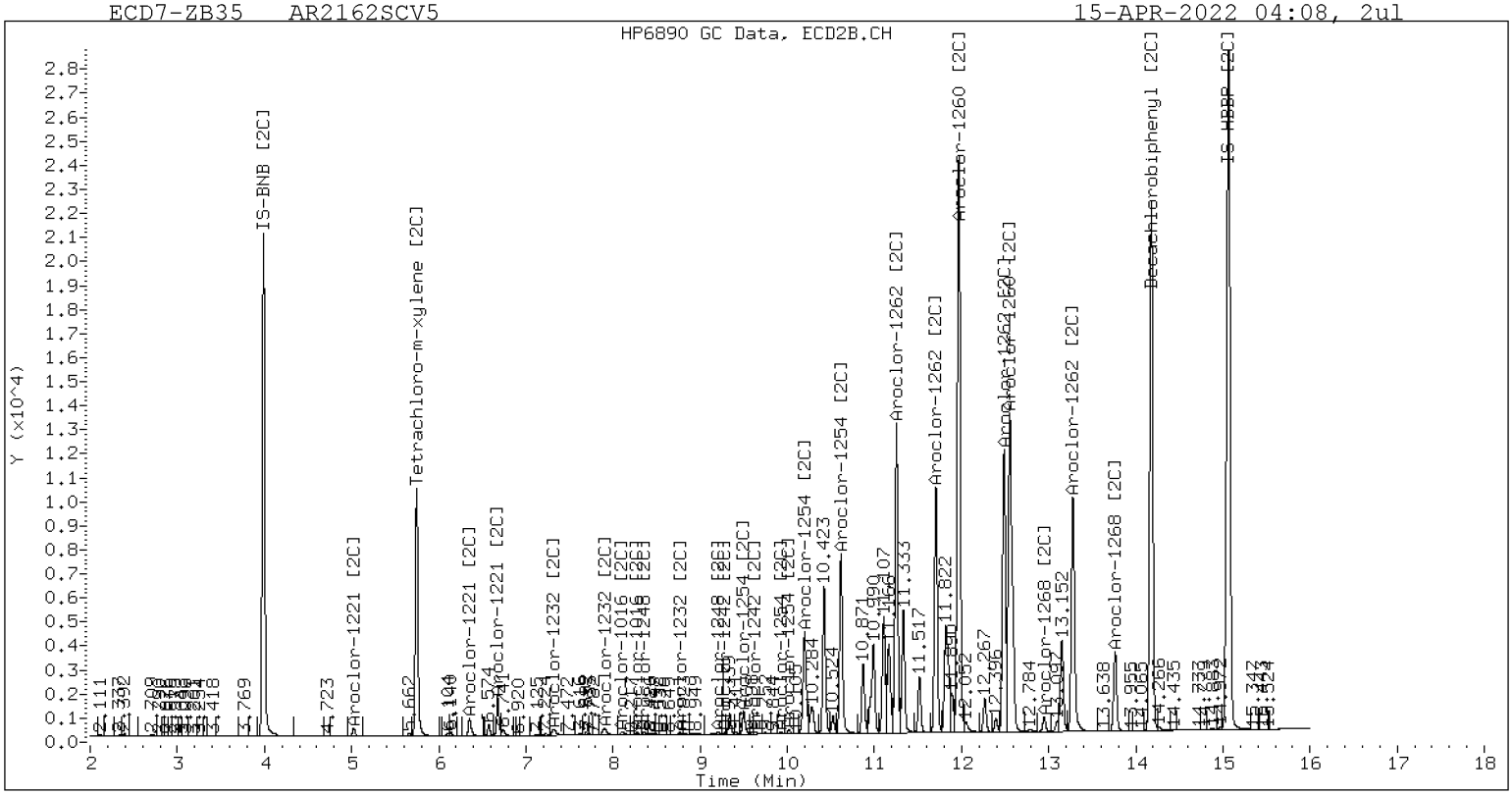
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 15-APR-2022 04:08, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 15-APR-2022 04:08, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
Client: HydroGeoLogic, Inc.
Calibration: FD00045
Sequence: SKD0226

SDG: 22E0325
Project: Portland Harbor Superfund Site 2021-2022
Laboratory ID: SKD0226-SCV6
Sequence Name: AR3268SCV6
Standard ID: K001268

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1232	250.00	259	3.6	20.00
Aroclor 1232 [2C]	250.00	267	6.8	20.00
Aroclor 1268	250.00	276	10.4	20.00
Aroclor 1268 [2C]	250.00	273	9.2	20.00
Decachlorobiphenyl	40.000	59.8	49.5	20.00
Tetrachlorometaxylene	40.000	41.4	3.6	20.00
Decachlorobiphenyl [2C]	40.000	76.8	92.0	20.00
Tetrachlorometaxylene [2C]	40.000	40.4	0.9	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142241ECD7.D
Data file 2: /220414.b/220414.b/04142241ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 15-APR-2022 04:29
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	254603	5.747	-0.002	447665	41.4	40.4	2.6	Tetrachloro-m-xylene
13.931	0.001	321268	14.182	0.001	1783460	59.8	76.8	24.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	457862	-5.8
Hexabromobiphenyl	571136	518312	-9.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	869658	-5.0
Hexabromobiphenyl	1789656	1586735	-11.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	18307	109.4	1	7.312	0.001	53523	113.7
Aroclor-1016	2	7.689	-0.000	60217	105.4	2	7.903	-0.001	109657	102.7
Aroclor-1016	3	7.827	0.001	23899	107.2	3	8.102	0.002	42255	101.7
Aroclor-1016	4	7.934	0.001	16567	108.3	4	8.273	0.002	25821	104.5
Total Col1Ave (4 peaks):				107.6		Total Col2Ave (4 peaks):			105.6	RPD = 2
Corrected Ave (3 peaks):				107.0		Corrected Ave (3 peaks):			103.0	RPD = 4
Aroclor-1221	1	4.792	0.000	5496	150.7	1	5.026	0.001	8555	158.1
Aroclor-1221	2	6.182	-0.001	9863	156.4	2	6.355	0.001	20612	160.3
Aroclor-1221	3	6.430	-0.000	29869	201.0	3	6.678	0.000	46815	201.1
Total Col1Ave (3 peaks):				169.4		Total Col2Ave (3 peaks):			173.2	RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.792	-0.003	5496	253.9	1	5.026	-0.003	8555	262.4
Aroclor-1232	2	6.182	-0.002	9863	234.4	2	7.312	-0.000	53523	265.8
Aroclor-1232	3	7.689	-0.001	60217	270.7	3	7.903	-0.002	109657	265.1
Aroclor-1232	4	8.614	-0.002	21488	276.7	4	8.766	-0.002	31829	274.8
Total Col1Ave (4 peaks):				258.9		Total Col2Ave (4 peaks):			267.0	RPD = 3
Corrected Ave (3 peaks):				253.0		Corrected Ave (3 peaks):			264.4	RPD = 4
Aroclor-1242	1	7.315	0.000	18307	144.0	1	7.312	0.001	53523	146.6
Aroclor-1242	2	7.689	-0.000	60217	141.9	2	7.903	-0.000	109657	135.4
Aroclor-1242	3	9.027	0.001	22963	139.0	3	9.281	-0.001	32271	130.0
Aroclor-1242	4	9.259	0.001	19441	139.2	4	9.629	0.001	38416	128.4
Total Col1Ave (4 peaks):				141.0		Total Col2Ave (4 peaks):			135.1	RPD = 4
Corrected Ave (3 peaks):				140.0		Corrected Ave (3 peaks):			131.3	RPD = 6
Aroclor-1248	1	8.444	0.000	17840	85.0	1	8.359	0.001	27183	74.2
Aroclor-1248	2	8.614	0.000	21488	88.8	2	8.766	0.000	31829	77.3
Aroclor-1248	3	9.027	0.000	22963	74.7	3	9.202	0.001	42670	71.0
Aroclor-1248	4	9.259	0.001	19441	82.5	4	9.629	0.004	38416	67.4
Total Col1Ave (4 peaks):				82.7		Total Col2Ave (4 peaks):			72.5	RPD = 13
Corrected Ave (3 peaks):				80.7		Corrected Ave (3 peaks):			70.8	RPD = 13
Aroclor-1254	1	9.332	-0.001	6993	19.2	1	9.499	-0.001	7186	12.4
Aroclor-1254	2	9.409	-0.000	3273	26.0	2	9.931	0.002	3814	17.3
Aroclor-1254	3	9.701	0.001	4068	17.4	3	10.021	0.000	6047	13.1
Aroclor-1254	4	9.837	0.002	7049	16.0	4	10.175	0.003	13499	13.2
Aroclor-1254	5	10.184	0.004	5900	12.6	5	10.621	0.002	4065	8.7
Total Col1Ave (5 peaks):				18.2		Total Col2Ave (5 peaks):			13.0	RPD = 34
Corrected Ave (4 peaks):				16.3		Corrected Ave (4 peaks):			11.9	RPD = 31
Aroclor-1260	1	11.080	0.001	40947	167.1	1	11.703	-0.004	149843	228.2
Aroclor-1260	2	11.517	0.046	51145	386.5	2	11.969	-0.001	66461	38.4
Aroclor-1260	3	11.766	0.000	26962	46.0	3	12.555	0.001	798155	695.2
Aroclor-1260	4	12.171	0.003	1129	3.8	4	13.278	0.000	282479	592.4
Aroclor-1260	5	12.281	0.002	216654	1718.2	NS	---			----
Total Col1Ave (5 peaks):				464.3		Total Col2Ave (4 peaks):			388.6	RPD = 18
Corrected Ave (4 peaks):				150.9		Corrected Ave (3 peaks):			286.3	RPD = 62*
Aroclor-1262	1	10.856	0.001	2490	11.1	1	11.255	0.001	104292	99.8
Aroclor-1262	2	12.281	-0.000	216654	747.6	2	11.703	-0.003	149843	168.0
Aroclor-1262	3	12.352	-0.002	199209	669.8	3	12.488	-0.002	746224	724.7
Aroclor-1262	4	13.019	-0.001	78954	319.5	4	13.278	-0.001	282479	307.0
Total Col1Ave (4 peaks):				437.0		Total Col2Ave (4 peaks):			324.8	RPD = 29
Corrected Ave (3 peaks):				333.5		Corrected Ave (3 peaks):			191.6	RPD = 54*
Aroclor-1268	1	12.281	-0.000	216654	273.9	1	12.488	-0.001	746224	274.0
Aroclor-1268	2	12.352	0.000	199209	273.6	2	12.555	-0.001	798155	274.9
Aroclor-1268	3	12.737	-0.000	171734	277.1	3	12.951	-0.000	695687	272.5
Aroclor-1268	4	13.525	0.000	517235	279.4	4	13.770	0.001	2721576	270.3
Total Col1Ave (4 peaks):				276.0		Total Col2Ave (4 peaks):			272.9	RPD = 1

Corrected Ave (3 peaks): 274.9 Corrected Ave (3 peaks): 272.3 RPD = 1

Total PCB Area Col1 (5.962 - 13.830) = 1868113 Col1 Total PCB = 0.5 ppm*

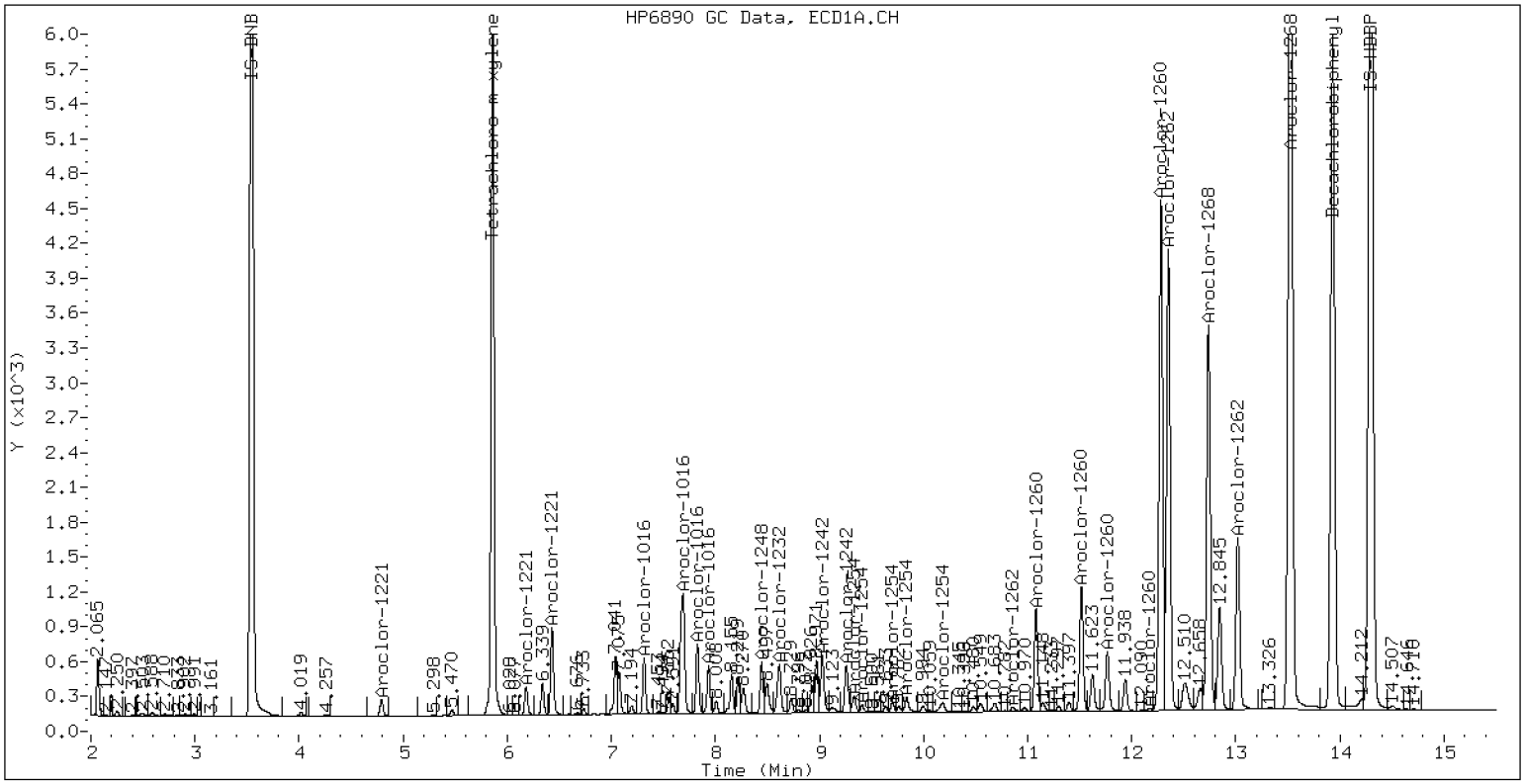
Total PCB Area Col2 (5.962 - 13.830) = 6603707 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

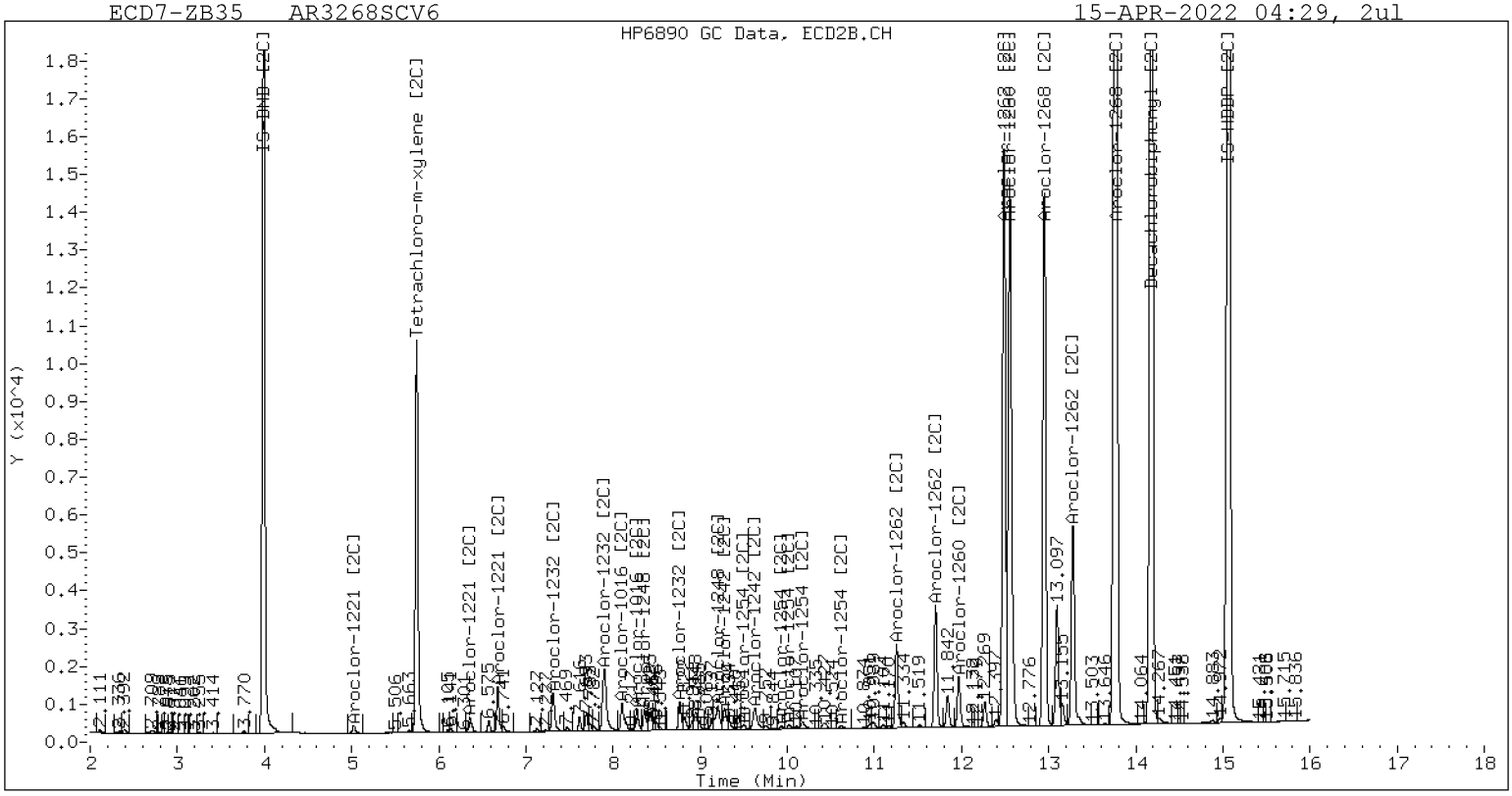
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 15-APR-2022 04:29, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 15-APR-2022 04:29, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	06132209ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKF0183	Injection Date:	06/13/22
Lab Sample ID:	SKF0183-ICV1	Injection Time:	19:05
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	264	0.0570570	0.0623379		5.4	+/-20
Aroclor-1254 (1)	A	250.00	283	0.0635633	0.0719980			
Aroclor-1254 (2)	A	250.00	282	0.0219917	0.0247808			
Aroclor-1254 (3)	A	250.00	160	0.0407939	0.0261004			
Aroclor-1254 (4)	A	250.00	288	0.0768776	0.0885433			
Aroclor-1254 (5)	A	250.00	305	0.0820587	0.1002670			
Aroclor 1254 [2C]	A	250.00	275	0.0505426	0.0542452		10.2	+/-20
Aroclor-1254 (1) [2C]	A	250.00	286	0.0531454	0.0608397			
Aroclor-1254 (2) [2C]	A	250.00	284	0.0203326	0.0230996			
Aroclor-1254 (3) [2C]	A	250.00	283	0.0423335	0.0479041			
Aroclor-1254 (4) [2C]	A	250.00	242	0.0939268	0.0908454			
Aroclor-1254 (5) [2C]	A	250.00	282	0.0429749	0.0485371			
Decachlorobiphenyl	A	40.000	39.9	0.8294275	0.8267153		-0.3	+/-20
Tetrachlorometaxylene	A	40.000	41.1	1.0737180	1.1028450		2.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	44.9	1.1707920	1.3135010		12.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	41.0	1.0199080	1.0443630		2.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132209ECD7.D
Data file 2: /220613.b/220613.b/06132209ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254ICV1
Client ID:
Injection Date: 13-JUN-2022 19:05
Report Date: 06/15/2022 10:15
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.857	-0.004	206848	5.748	-0.000	406055	41.1	41.0	0.3	Tetrachloro-m-xylene
13.933	0.002	246393	14.185	-0.002	1176949	39.9	44.9	11.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	375117	-22.8
Hexabromobiphenyl	571136	596077	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	777613	-15.0
Hexabromobiphenyl	1789656	1792080	0.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.334	0.000	84399	283.2	1	9.503	0.000	147843	286.2
Aroclor-1254	2	9.411	0.002	29049	281.7	2	9.933	0.000	56133	284.0
Aroclor-1254	3	9.702	0.002	30596	160.0	3	10.025	0.000	116409	282.9
Aroclor-1254	4	9.838	0.003	103794	287.9	4	10.176	0.000	220758	241.8
Aroclor-1254	5	10.188	0.008	117537	305.5	5	10.622	0.000	117947	282.4

Total Col1Ave (5 peaks): 263.6 Total Col2Ave (5 peaks): 275.5 RPD = 4

Corrected Ave (4 peaks): 253.2 Corrected Ave (4 peaks): 272.8 RPD = 7

CalAmt %D: 5.5 CalAmt %D: 10.2

Total PCB Area Col1 (5.962 - 13.830) = 1083201 Col1 Total PCB = 0.3 ppm*

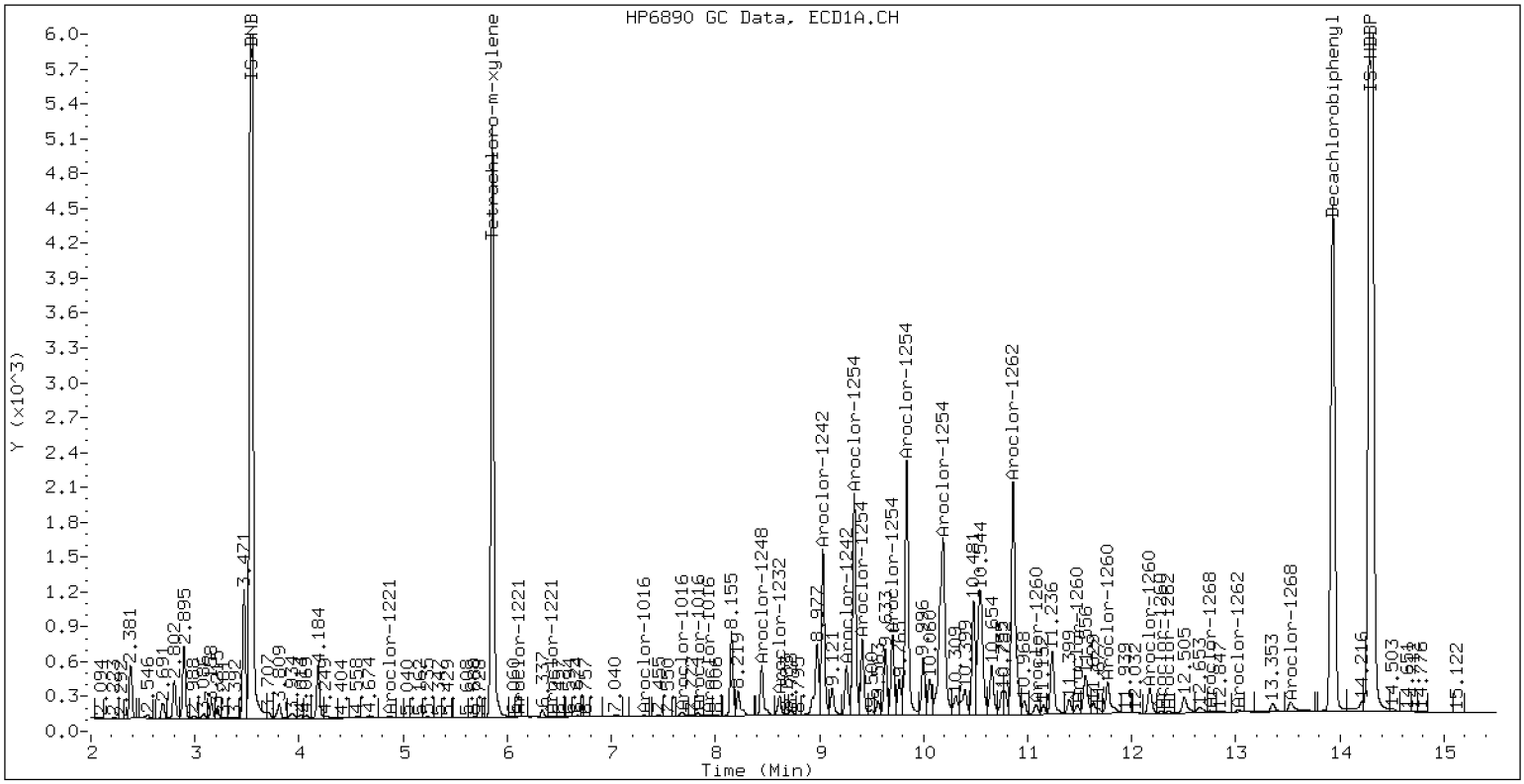
Total PCB Area Col2 (5.962 - 13.830) = 2355895 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

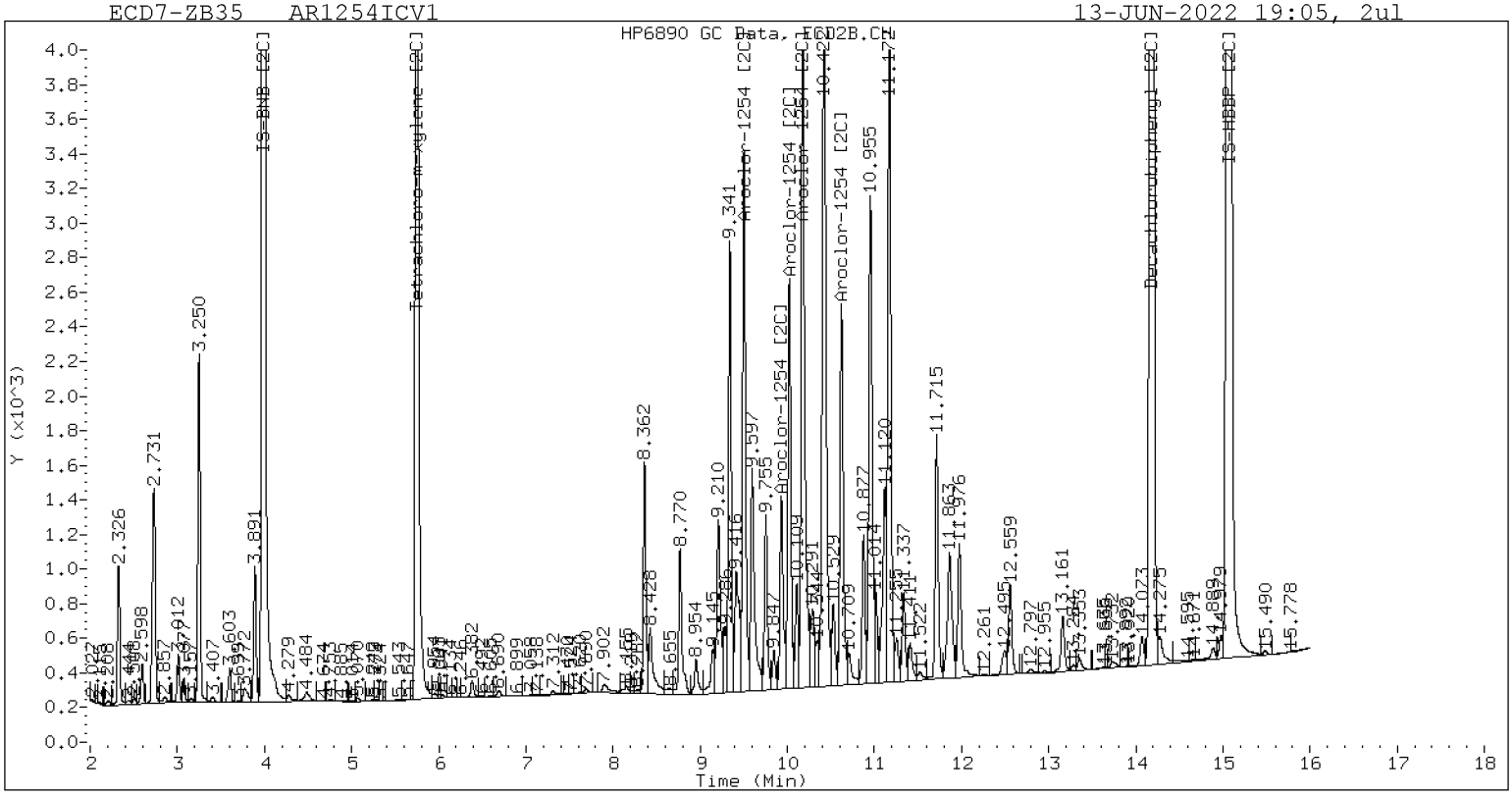
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 13-JUN-2022 19:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 13-JUN-2022 19:05, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	06132210ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKF0183	Injection Date:	06/13/22
Lab Sample ID:	SKF0183-ICV2	Injection Time:	19:26
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1016	A	250.00	261	0.0486878	0.0506123		4.3	+/-20
Aroclor-1016 (1)	A	250.00	252	0.0292447	0.0294991		0.8	
Aroclor-1016 (2)	A	250.00	258	0.0998488	0.1030601		3.2	
Aroclor-1016 (3)	A	250.00	265	0.0389354	0.0412726		6.0	
Aroclor-1016 (4)	A	250.00	268	0.0267225	0.0286173		7.2	
Aroclor 1016 [2C]	A	250.00	255	0.0506246	0.0544878		1.9	+/-20
Aroclor-1016 (1) [2C]	A	250.00	226	0.0433196	0.0391892		-9.6	
Aroclor-1016 (2) [2C]	A	250.00	303	0.0982149	0.1190284		21.2	
Aroclor-1016 (3) [2C]	A	250.00	245	0.0382354	0.0374858		-2.0	
Aroclor-1016 (4) [2C]	A	250.00	245	0.0227284	0.0222475		-2.0	
Aroclor 1260	A	250.00	223	0.0427870	0.0386310		-10.6	+/-20
Aroclor-1260 (1)	A	250.00	200	0.0378196	0.0302720		-20.0	
Aroclor-1260 (2)	A	250.00	236	0.0204220	0.0192807		-5.6	
Aroclor-1260 (3)	A	250.00	251	0.0903972	0.0907554		0.4	
Aroclor-1260 (4)	A	250.00	184	0.0458340	0.0336920		-26.4	
Aroclor-1260 (5)	A	250.00	246	0.0194622	0.0191547		-1.6	
Aroclor 1260 [2C]	A	250.00	229	0.0505597	0.0450454		-8.5	+/-20
Aroclor-1260 (1) [2C]	A	250.00	220	0.0330997	0.0290972		-12.0	
Aroclor-1260 (2) [2C]	A	250.00	212	0.0872162	0.0739779		-15.2	
Aroclor-1260 (3) [2C]	A	250.00	226	0.0578805	0.0524056		-9.6	
Aroclor-1260 (4) [2C]	A	250.00	257	0.0240422	0.0247008		2.8	
Decachlorobiphenyl	A	40.000	39.6	0.8294275	0.8220498		-1.0	+/-20
Tetrachlorometaxylene	A	40.000	40.2	1.0737180	1.0784160		0.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	45.7	1.1707920	1.3387890		14.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	45.0	1.0199080	1.1464540		12.5	+/-20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132210ECD7.D
Data file 2: /220613.b/220613.b/06132210ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660ICV2
Client ID:
Injection Date: 13-JUN-2022 19:26
Report Date: 06/15/2022 10:15
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.003	177097	5.750	0.002	340291	40.2	45.0	11.2	Tetrachloro-m-xylene
13.931	0.001	214980	14.185	-0.002	971006	39.6	45.7	14.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	328439	-32.4
Hexabromobiphenyl	571136	523034	-8.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	593641	-35.1
Hexabromobiphenyl	1789656	1450574	-18.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.314	-0.000	30277	252.2	1	7.313	0.001	72701	226.2
Aroclor-1016	2	7.691	0.002	105778	258.0	2	7.907	0.001	220813	303.0
Aroclor-1016	3	7.829	0.002	42361	265.0	3	8.106	0.000	69541	245.1
Aroclor-1016	4	7.936	0.002	29372	267.7	4	8.277	-0.001	41272	244.7

Total Col1Ave (4 peaks): 260.7 Total Col2Ave (4 peaks): 254.7 RPD = 2
Corrected Ave (3 peaks): 258.4 Corrected Ave (3 peaks): 238.7 RPD = 8

CalAmt %D: 4.3 CalAmt %D: 1.9

Aroclor-1260	1	11.081	0.002	49479	200.1	1	11.711	-0.001	131899	219.8
Aroclor-1260	2	11.475	0.004	31514	236.0	2	11.973	-0.001	335345	212.1
Aroclor-1260	3	11.768	0.002	148338	251.0	3	12.559	-0.001	237557	226.4
Aroclor-1260	4	12.174	0.007	55069	183.8	4	13.284	-0.001	111970	256.8
Aroclor-1260	5	12.282	0.003	31308	246.1	NS	---			----

Total Col1Ave (5 peaks): 223.4 Total Col2Ave (4 peaks): 228.8 RPD = 2
Corrected Ave (4 peaks): 216.5 Corrected Ave (3 peaks): 219.4 RPD = 1

CalAmt %D: -10.6 CalAmt %D: -8.5

Total PCB Area Col1 (5.962 - 13.830) = 1626925 Col1 Total PCB = 0.6 ppm*

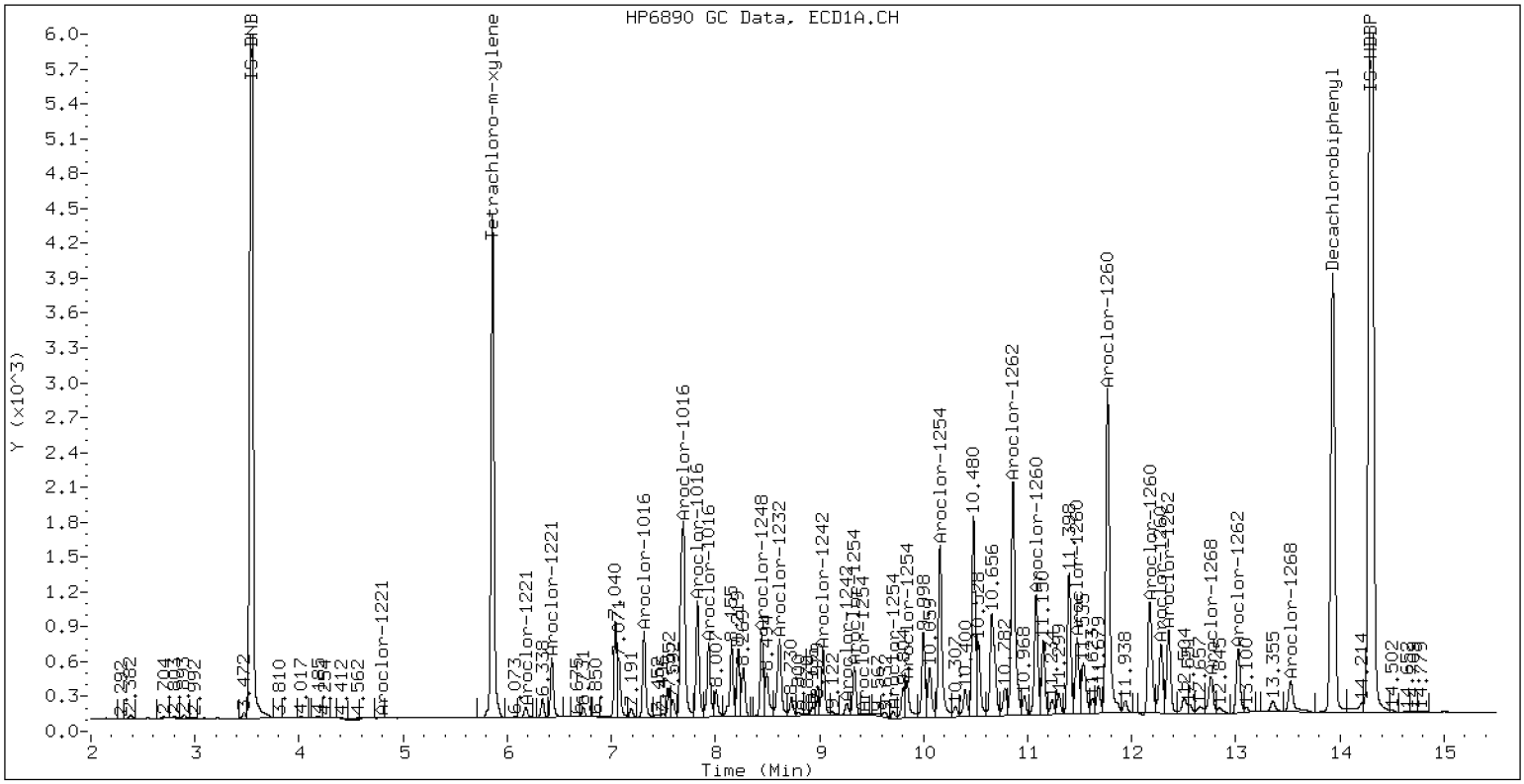
Total PCB Area Col2 (5.962 - 13.830) = 3275164 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

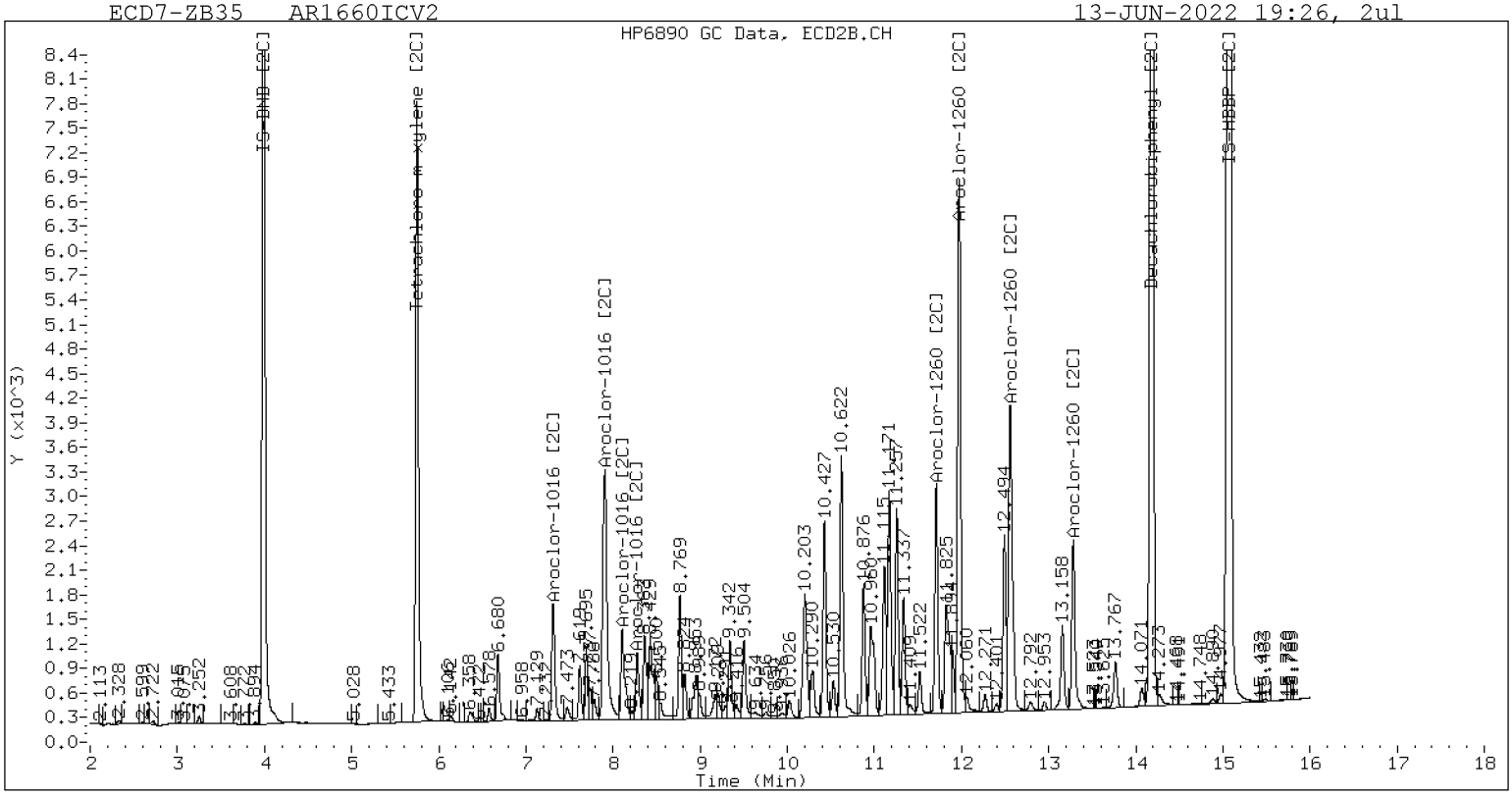
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 13-JUN-2022 19:26, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660ICV2 13-JUN-2022 19:26, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	04142236ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKD0226	Injection Date:	04/15/22
Lab Sample ID:	SKD0226-SCV1	Injection Time:	02:41
Sequence Name:	AR1660SCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	236	0.0486878	0.0459144		-5.6	+/-20
Aroclor 1016 [2C]	A	250.00	237	0.0506246	0.0477929		-5.3	+/-20
Aroclor 1260	A	250.00	313	0.0427870	0.0533695		25.1	+/-20 *
Aroclor 1260 [2C]	A	250.00	327	0.0505597	0.0652454		30.9	+/-20 *
Decachlorobiphenyl	A	40.000	41.0	0.8294275	0.8510904		2.6	+/-20
Tetrachlorometaxylene	A	40.000	41.6	1.0737180	1.1176210		4.1	+/-20
Decachlorobiphenyl [2C]	A	40.000	47.6	1.1707920	1.3918550		18.9	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.4	1.0199080	1.0308530		1.1	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142236ECD7.D
Data file 2: /220414.b/220414.b/04142236ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 15-APR-2022 02:41
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.000	252816	5.748	-0.000	451594	41.6	40.4	2.9	Tetrachloro-m-xylene
13.931	0.000	219286	14.180	-0.002	1114764	41.0	47.6	14.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	452418	-6.9
Hexabromobiphenyl	571136	515306	-9.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	876156	-4.2
Hexabromobiphenyl	1789656	1601839	-10.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.316	0.001	39155	236.8	1	7.311	0.001	112706	237.6
Aroclor-1016	2	7.689	0.000	132942	235.4	2	7.903	-0.000	252843	235.1
Aroclor-1016	3	7.828	0.002	51772	235.1	3	8.102	0.001	98249	234.6
Aroclor-1016	4	7.934	0.001	35787	236.8	4	8.272	0.001	59627	239.5
Total Col1Ave (4 peaks):					236.0	Total Col2Ave (4 peaks):				236.7 RPD = 0
Corrected Ave (3 peaks):					235.8	Corrected Ave (3 peaks):				235.7 RPD = 0
Aroclor-1221	1	4.793	0.002	281	7.8	1	5.026	0.001	383	7.0
Aroclor-1221	2	6.181	-0.001	5320	85.4	2	6.359	0.004	13262	102.4
Aroclor-1221	3	6.430	0.000	28064	191.1	3	6.678	0.001	46208	197.1
Total Col1Ave (3 peaks):					94.8	Total Col2Ave (3 peaks):				102.1 RPD = 8
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.793	-0.002	281	13.1	1	5.026	-0.003	383	11.7
Aroclor-1232	2	6.181	-0.003	5320	128.0	2	7.311	-0.001	112706	555.5
Aroclor-1232	3	7.689	-0.001	132942	604.8	3	7.903	-0.002	252843	606.6
Aroclor-1232	4	8.615	-0.001	48435	631.2	4	8.765	-0.002	77662	665.6
Total Col1Ave (4 peaks):					344.3	Total Col2Ave (4 peaks):				459.8 RPD = 29
Corrected Ave (3 peaks):					248.6	Corrected Ave (3 peaks):				391.3 RPD = 45*
Aroclor-1242	1	7.316	0.001	39155	311.6	1	7.311	0.001	112706	306.3
Aroclor-1242	2	7.689	0.001	132942	317.1	2	7.903	0.000	252843	309.9
Aroclor-1242	3	9.032	0.006	29784	182.4	3	9.279	-0.004	7937	31.7
Aroclor-1242	4	9.258	-0.001	4156	30.1	4	9.627	-0.001	3306	11.0
Total Col1Ave (4 peaks):					210.3	Total Col2Ave (4 peaks):				164.7 RPD = 24
Corrected Ave (3 peaks):					174.7	Corrected Ave (3 peaks):				116.4 RPD = 40*
Aroclor-1248	1	8.444	-0.000	39715	191.4	1	8.358	-0.000	69011	186.9
Aroclor-1248	2	8.615	0.001	48435	202.6	2	8.765	-0.000	77662	187.2
Aroclor-1248	3	9.032	0.005	29784	98.0	3	9.167	-0.034	38251	63.1
Aroclor-1248	4	9.258	-0.000	4156	17.8	4	9.627	0.003	3306	5.8
Total Col1Ave (4 peaks):					127.5	Total Col2Ave (4 peaks):				110.7 RPD = 14
Corrected Ave (3 peaks):					102.4	Corrected Ave (3 peaks):				85.3 RPD = 18
Aroclor-1254	1	9.334	0.001	26649	74.1	1	9.500	-0.001	48404	83.2
Aroclor-1254	2	9.409	-0.001	503	4.0	2	9.932	0.002	760	3.4
Aroclor-1254	3	9.700	-0.000	3727	16.2	3	10.021	0.001	6185	13.3
Aroclor-1254	4	9.832	-0.003	11828	27.2	4	10.199	0.027	136275	132.5
Aroclor-1254	5	10.156	-0.023	86687	186.8	5	10.618	-0.001	243552	517.5
Total Col1Ave (5 peaks):					61.7	Total Col2Ave (5 peaks):				150.0 RPD = 83*
Corrected Ave (4 peaks):					30.4	Corrected Ave (4 peaks):				58.1 RPD = 63*
Aroclor-1260	1	11.080	0.001	78017	320.3	1	11.707	-0.001	209861	316.6
Aroclor-1260	2	11.473	0.002	40713	309.5	2	11.969	-0.001	556382	318.6
Aroclor-1260	3	11.766	0.000	181742	312.1	3	12.555	0.001	369030	318.4
Aroclor-1260	4	12.168	0.001	89051	301.6	4	13.280	0.002	171134	355.5
Aroclor-1260	5	12.280	0.002	40190	320.6	NS	---			----
Total Col1Ave (5 peaks):					312.8	Total Col2Ave (4 peaks):				327.3 RPD = 5
Corrected Ave (4 peaks):					310.9	Corrected Ave (3 peaks):				317.9 RPD = 2
Aroclor-1262	1	10.855	-0.000	119501	534.9	1	11.253	-0.001	206140	195.3
Aroclor-1262	2	12.280	-0.001	40190	139.5	2	11.707	0.000	209861	233.1
Aroclor-1262	3	12.354	-0.000	48033	162.5	3	12.490	0.000	159577	153.5
Aroclor-1262	4	13.020	-0.000	45464	185.0	4	13.280	0.000	171134	184.2
Total Col1Ave (4 peaks):					255.5	Total Col2Ave (4 peaks):				191.5 RPD = 29
Corrected Ave (3 peaks):					162.3	Corrected Ave (3 peaks):				177.7 RPD = 9
Aroclor-1268	1	12.280	-0.001	40190	51.1	1	12.490	0.001	159577	58.0
Aroclor-1268	2	12.354	0.002	48033	66.4	2	12.555	-0.000	369030	125.9
Aroclor-1268	3	12.759	0.021	24159	39.2	3	12.951	-0.001	5355	2.1
Aroclor-1268	4	13.523	-0.001	22467	12.2	4	13.763	-0.007	30550	3.0
Total Col1Ave (4 peaks):					42.2	Total Col2Ave (4 peaks):				47.3 RPD = 11

Corrected Ave (3 peaks): 34.2 Corrected Ave (3 peaks): 21.0 RPD = 48*

Total PCB Area Col1 (5.962 - 13.830) = 2067740 Col1 Total PCB = 0.6 ppm*

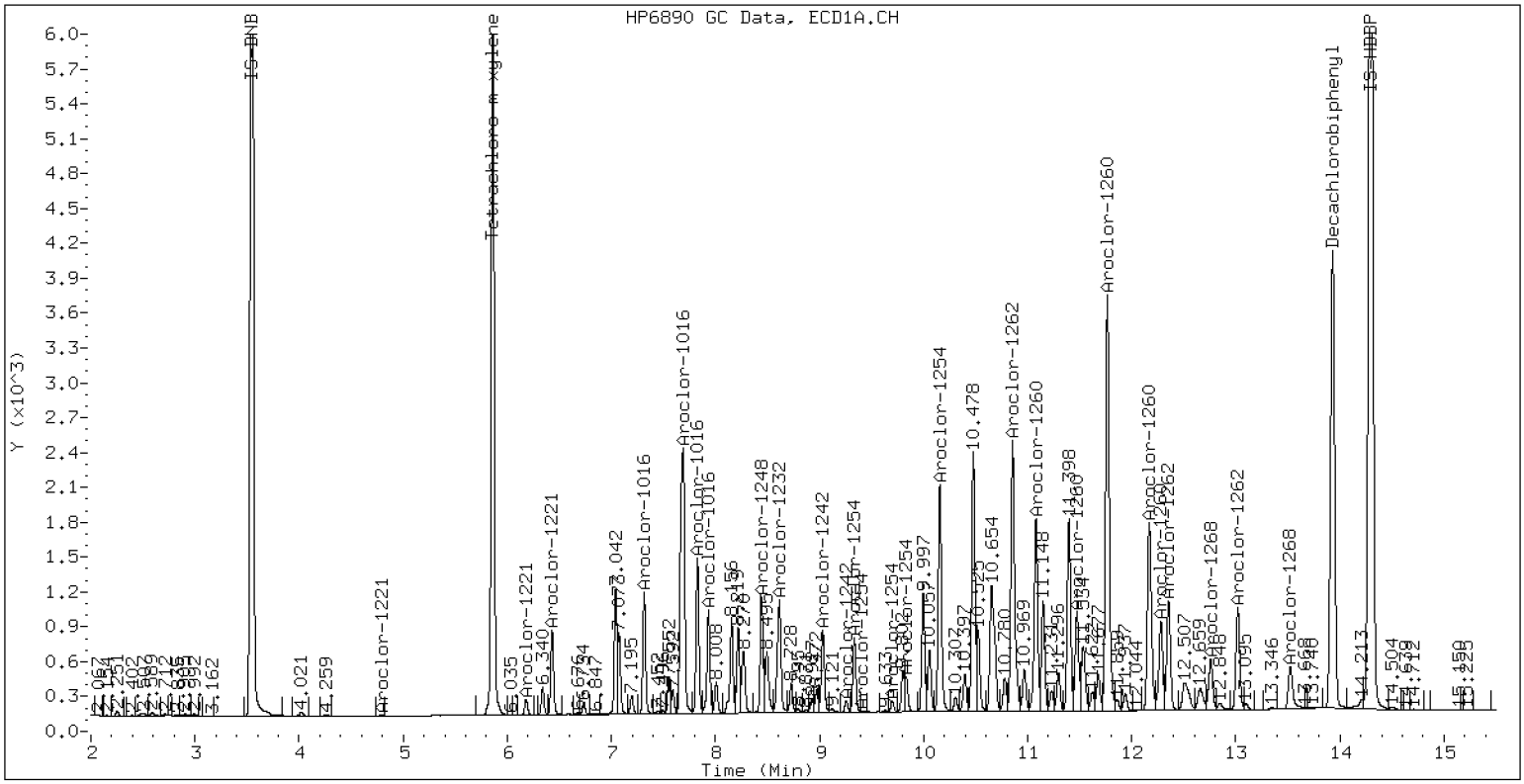
Total PCB Area Col2 (5.962 - 13.830) = 4680573 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

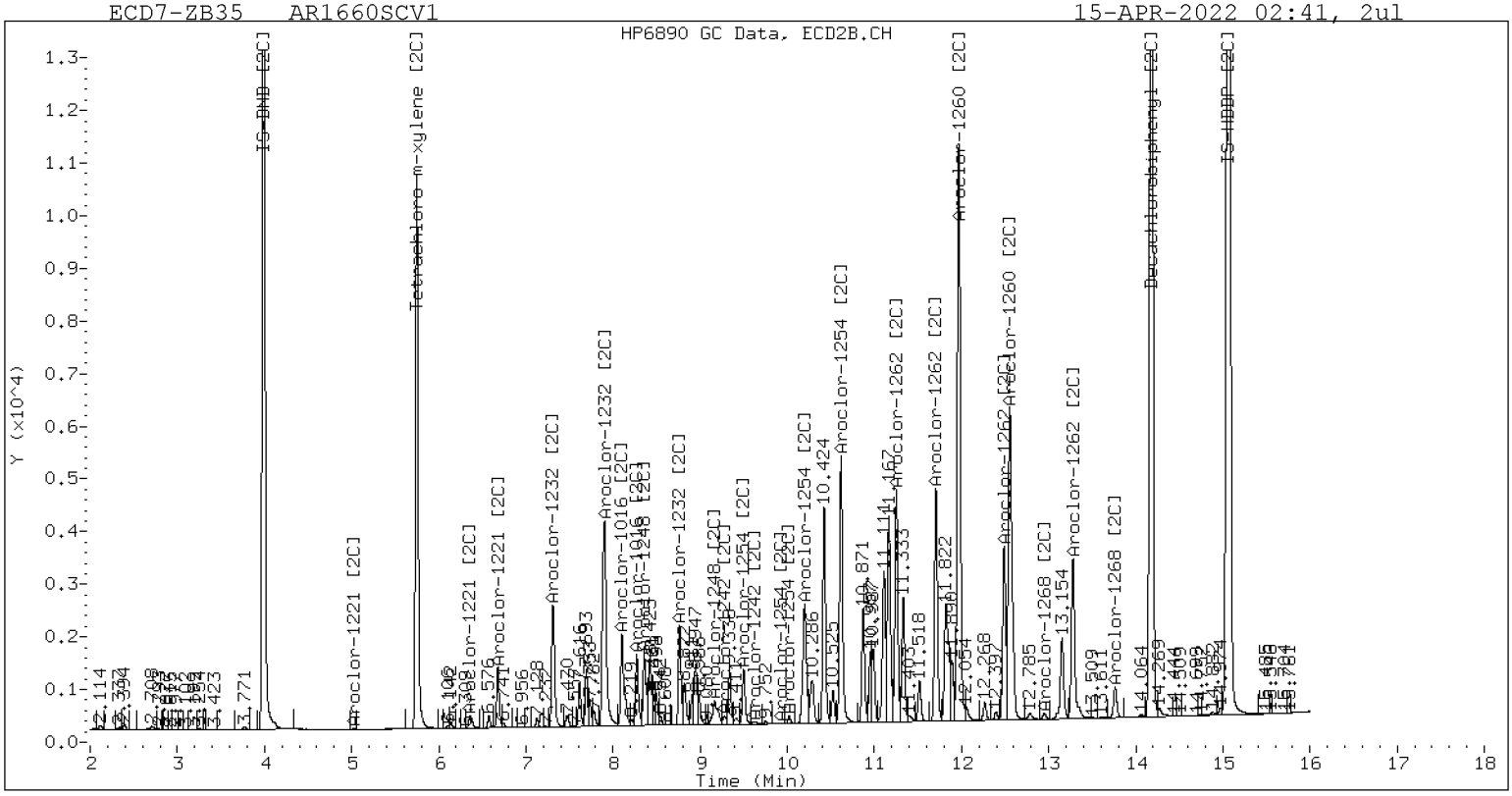
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 15-APR-2022 02:41, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 15-APR-2022 02:41, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	04142237ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKD0226	Injection Date:	04/15/22
Lab Sample ID:	SKD0226-SCV2	Injection Time:	03:03
Sequence Name:	AR1242SCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	254	0.0374058	0.0376446		1.4	+/-20
Aroclor 1242 [2C]	A	250.00	244	0.0396140	0.0383985		-2.4	+/-20
Decachlorobiphenyl	A	40.000	41.8	0.8294275	0.8674649		4.6	+/-20
Tetrachlorometaxylene	A	40.000	40.9	1.0737180	1.0972810		2.2	+/-20
Decachlorobiphenyl [2C]	A	40.000	48.3	1.1707920	1.4148530		20.8	+/-20 *
Tetrachlorometaxylene [2C]	A	40.000	39.7	1.0199080	1.0134980		-0.6	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142237ECD7.D
Data file 2: /220414.b/220414.b/04142237ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 15-APR-2022 03:03
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	250840	5.747	-0.001	447055	40.9	39.7	2.8	Tetrachloro-m-xylene
13.931	0.000	224038	14.180	-0.002	1131332	41.8	48.3	14.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	457203	-5.9
Hexabromobiphenyl	571136	516535	-9.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	882202	-3.6
Hexabromobiphenyl	1789656	1599222	-10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	30901	184.9	1	7.311	-0.000	87985	184.2
Aroclor-1016	2	7.689	-0.000	104195	182.6	2	7.902	-0.001	196406	181.3
Aroclor-1016	3	7.827	0.001	40928	183.9	3	8.102	0.001	76906	182.4
Aroclor-1016	4	7.934	0.001	28237	184.9	4	8.273	0.001	46478	185.4
Total Col1Ave (4 peaks):				184.1		Total Col2Ave (4 peaks):			183.3	RPD = 0
Corrected Ave (3 peaks):				183.8		Corrected Ave (3 peaks):			182.6	RPD = 1
Aroclor-1221	1	4.795	0.003	192	5.3	1	5.028	0.003	294	5.4
Aroclor-1221	2	6.182	-0.001	4229	67.2	2	6.360	0.006	11366	87.1
Aroclor-1221	3	6.430	0.000	21916	147.7	3	6.678	0.001	35753	151.4
Total Col1Ave (3 peaks):				73.4		Total Col2Ave (3 peaks):			81.3	RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.795	-0.000	192	8.9	1	5.028	-0.001	294	8.9
Aroclor-1232	2	6.182	-0.002	4229	100.7	2	7.311	-0.001	87985	430.7
Aroclor-1232	3	7.689	-0.001	104195	469.0	3	7.902	-0.003	196406	468.0
Aroclor-1232	4	8.614	-0.002	40620	523.9	4	8.766	-0.002	64017	544.9
Total Col1Ave (4 peaks):				275.6		Total Col2Ave (4 peaks):			363.1	RPD = 27
Corrected Ave (3 peaks):				192.9		Corrected Ave (3 peaks):			302.5	RPD = 44*
Aroclor-1242	1	7.315	0.000	30901	243.4	1	7.311	0.000	87985	237.5
Aroclor-1242	2	7.689	-0.000	104195	245.9	2	7.902	-0.001	196406	239.1
Aroclor-1242	3	9.026	-0.000	44303	268.5	3	9.280	-0.002	60652	240.9
Aroclor-1242	4	9.257	-0.001	35741	256.3	4	9.626	-0.002	78397	258.2
Total Col1Ave (4 peaks):				253.5		Total Col2Ave (4 peaks):			243.9	RPD = 4
Corrected Ave (3 peaks):				248.5		Corrected Ave (3 peaks):			239.2	RPD = 4
Aroclor-1248	1	8.444	-0.000	32887	156.8	1	8.359	0.000	56178	151.1
Aroclor-1248	2	8.614	-0.000	40620	168.2	2	8.766	-0.000	64017	153.2
Aroclor-1248	3	9.026	-0.001	44303	144.3	3	9.201	-0.000	81541	133.7
Aroclor-1248	4	9.257	-0.001	35741	151.8	4	9.626	0.001	78397	135.6
Total Col1Ave (4 peaks):				155.3		Total Col2Ave (4 peaks):			143.4	RPD = 8
Corrected Ave (3 peaks):				151.0		Corrected Ave (3 peaks):			140.1	RPD = 7
Aroclor-1254	1	9.332	-0.002	18681	51.4	1	9.498	-0.002	22798	38.9
Aroclor-1254	2	9.409	-0.001	8334	66.3	2	9.930	0.000	12088	53.9
Aroclor-1254	3	9.699	-0.001	11878	50.9	3	10.020	-0.000	20344	43.6
Aroclor-1254	4	9.835	-0.000	19768	45.0	4	10.172	-0.000	40681	39.3
Aroclor-1254	5	10.182	0.002	17749	37.8	5	10.620	0.002	9125	19.3
Total Col1Ave (5 peaks):				50.3		Total Col2Ave (5 peaks):			39.0	RPD = 25
Corrected Ave (4 peaks):				46.3		Corrected Ave (4 peaks):			35.3	RPD = 27
Aroclor-1260	1	11.081	0.002	779	3.2	1	11.713	0.005	4935	7.5
Aroclor-1260	2	11.478	0.007	346	2.6	2	11.973	0.003	3104	1.8
Aroclor-1260	3	11.767	0.001	1742	3.0	3	12.558	0.004	2070	1.8
Aroclor-1260	4	12.172	0.004	845	2.9	4	13.282	0.004	622	1.3
Aroclor-1260	5	12.285	0.006	103	0.8	NS	---			----
Total Col1Ave (5 peaks):				2.5		Total Col2Ave (4 peaks):			3.1	RPD = 21
Corrected Ave (4 peaks):				2.3		Corrected Ave (3 peaks):			1.6	RPD = 35
Aroclor-1262	1	10.858	0.002	8956	40.0	1	11.252	-0.002	1199	1.1
Aroclor-1262	2	12.285	0.004	103	0.4	2	11.713	0.006	4935	5.5
Aroclor-1262	3	12.357	0.003	189	0.6	3	12.490	0.000	1093	1.1
Aroclor-1262	4	13.019	-0.001	484	2.0	4	13.282	0.002	622	0.7
Total Col1Ave (4 peaks):				10.7		Total Col2Ave (4 peaks):			2.1	RPD = 135*
Corrected Ave (3 peaks):				1.0		Corrected Ave (3 peaks):			1.0	RPD = 3
Aroclor-1268	1	12.285	0.004	103	0.1	1	12.490	0.002	1093	0.4
Aroclor-1268	2	12.357	0.006	189	0.3	2	12.558	0.003	2070	0.7
Aroclor-1268	3	12.659	-0.078	17439	28.2	3	12.955	0.004	1608	0.6
Aroclor-1268	4	13.525	0.000	12680	6.9	4	13.765	-0.005	2247	0.2
Total Col1Ave (4 peaks):				8.9		Total Col2Ave (4 peaks):			0.5	RPD = 179*

Corrected Ave (3 peaks): 2.4 Corrected Ave (3 peaks): 0.4 RPD = 142*

Total PCB Area Col1 (5.962 - 13.830) = 840676 Col1 Total PCB = 0.2 ppm*

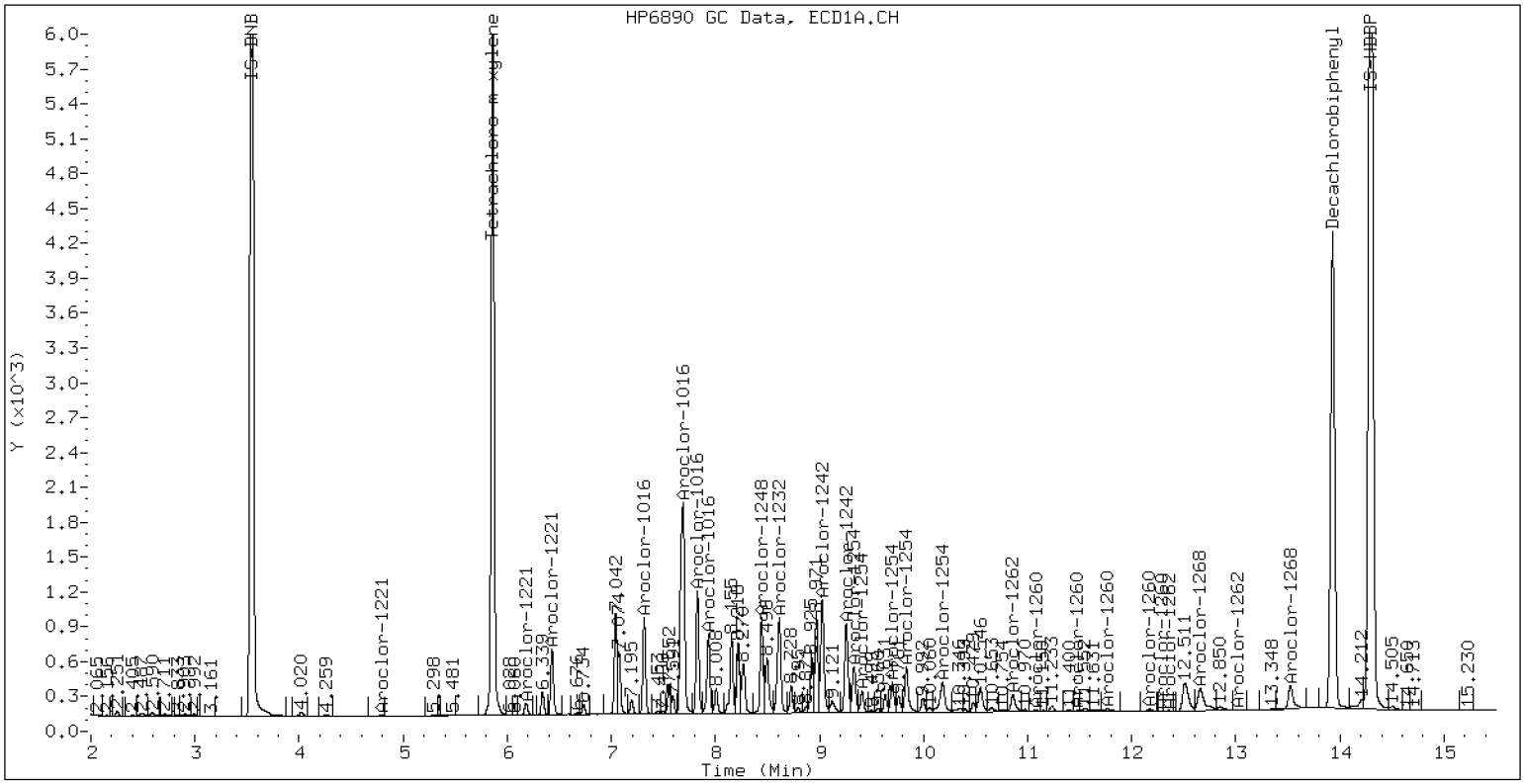
Total PCB Area Col2 (5.962 - 13.830) = 1466994 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

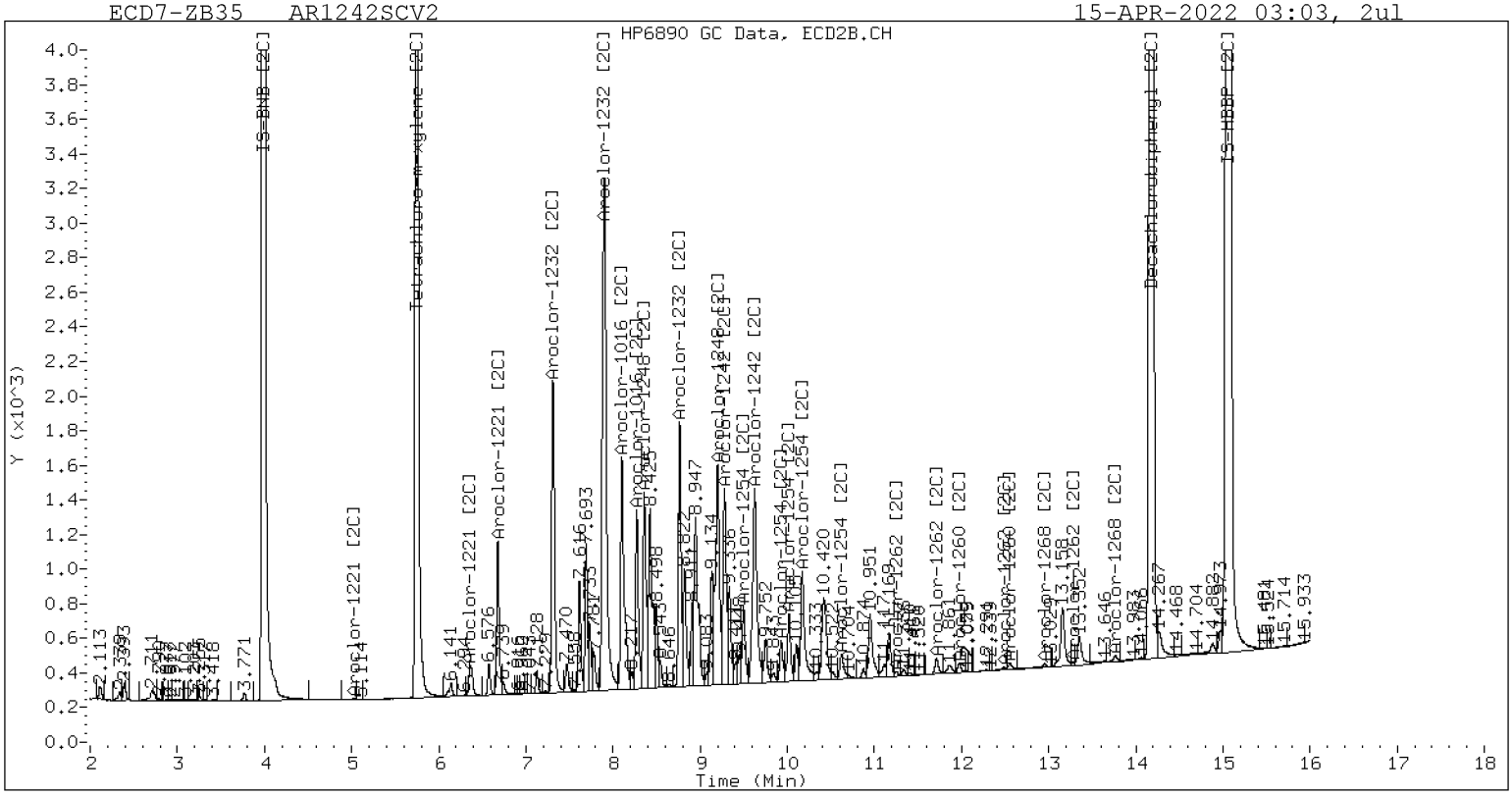
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 15-APR-2022 03:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 15-APR-2022 03:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	04142238ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKD0226	Injection Date:	04/15/22
Lab Sample ID:	SKD0226-SCV3	Injection Time:	03:24
Sequence Name:	AR1248SCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	259	0.0434701	0.0449680		3.4	+/-20
Aroclor 1248 [2C]	A	250.00	252	0.0448386	0.0452015		0.9	+/-20
Decachlorobiphenyl	A	40.000	41.0	0.8294275	0.8503659		2.5	+/-20
Tetrachlorometaxylene	A	40.000	40.9	1.0737180	1.0968360		2.2	+/-20
Decachlorobiphenyl [2C]	A	40.000	47.0	1.1707920	1.3766960		17.6	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.2	1.0199080	1.0261010		0.6	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142238ECD7.D
Data file 2: /220414.b/220414.b/04142238ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 15-APR-2022 03:24
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	249665	5.746	-0.002	450379	40.9	40.2	1.5	Tetrachloro-m-xylene
13.930	-0.001	220306	14.180	-0.002	1106001	41.0	47.0	13.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	455246	-6.3
Hexabromobiphenyl	571136	518144	-9.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	877845	-4.1
Hexabromobiphenyl	1789656	1606747	-10.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.314	-0.001	13648	82.0	1	7.309	-0.002	40994	86.2
Aroclor-1016	2	7.686	-0.003	35475	62.4	2	7.899	-0.005	124769	115.8
Aroclor-1016	3	7.829	0.003	23045	104.0	3	8.102	0.001	26779	63.8
Aroclor-1016	4	7.933	0.000	15917	104.7	4	8.273	0.001	23331	93.5
Total Col1Ave (4 peaks): 88.3						Total Col2Ave (4 peaks): 89.8 RPD = 2				
Corrected Ave (3 peaks): 82.8						Corrected Ave (3 peaks): 81.2 RPD = 2				
Aroclor-1221	1	---			0.0	1	5.035	0.010	32	0.6
Aroclor-1221	2	6.179	-0.003	276	4.4	2	6.379	0.024	5431	41.8
Aroclor-1221	3	6.429	-0.001	2447	16.6	3	6.680	0.003	4703	20.0
Col1Ave: <3 Quant Peaks						Col2Ave: 20.8				
Aroclor-1232	1	---			0.0	1	5.035	0.006	32	1.0
Aroclor-1232	2	6.179	-0.005	276	6.6	2	7.309	-0.003	40994	201.7
Aroclor-1232	3	7.686	-0.004	35475	160.4	3	7.899	-0.006	124769	298.8
Aroclor-1232	4	8.614	-0.002	62069	803.9	4	8.766	-0.002	106076	907.3
Total Col1Ave (3 peaks): 323.6						Total Col2Ave (4 peaks): 352.2 RPD = 8				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 167.1				
Aroclor-1242	1	7.314	-0.000	13648	107.9	1	7.309	-0.002	40994	111.2
Aroclor-1242	2	7.686	-0.003	35475	84.1	2	7.899	-0.004	124769	152.6
Aroclor-1242	3	9.027	0.000	79127	481.6	3	9.279	-0.004	110745	442.0
Aroclor-1242	4	9.257	-0.001	61014	439.4	4	9.624	-0.004	146393	484.6
Total Col1Ave (4 peaks): 278.3						Total Col2Ave (4 peaks): 297.6 RPD = 7				
Corrected Ave (3 peaks): 210.5						Corrected Ave (3 peaks): 235.3 RPD = 11				
Aroclor-1248	1	8.444	-0.000	53684	257.1	1	8.359	-0.000	92883	251.0
Aroclor-1248	2	8.614	-0.000	62069	258.0	2	8.766	-0.000	106076	255.2
Aroclor-1248	3	9.027	-0.000	79127	258.8	3	9.201	-0.001	150647	248.2
Aroclor-1248	4	9.257	-0.001	61014	260.3	4	9.624	-0.000	146393	254.5
Total Col1Ave (4 peaks): 258.6						Total Col2Ave (4 peaks): 252.2 RPD = 2				
Corrected Ave (3 peaks): 258.0						Corrected Ave (3 peaks): 251.2 RPD = 3				
Aroclor-1254	1	9.331	-0.003	37207	102.9	1	9.499	-0.002	45011	77.2
Aroclor-1254	2	9.409	-0.001	17605	140.7	2	9.929	-0.000	29438	131.9
Aroclor-1254	3	9.699	-0.001	24882	107.2	3	10.020	-0.001	45029	96.9
Aroclor-1254	4	9.835	-0.000	40014	91.5	4	10.171	-0.001	84804	82.3
Aroclor-1254	5	10.182	0.003	30534	65.4	5	10.627	0.008	11336	24.0
Total Col1Ave (5 peaks): 101.5						Total Col2Ave (5 peaks): 82.5 RPD = 21				
Corrected Ave (4 peaks): 91.7						Corrected Ave (4 peaks): 70.1 RPD = 27				
Aroclor-1260	1	11.079	-0.000	637	2.6	1	11.712	0.005	5024	7.6
Aroclor-1260	2	11.481	0.010	136	1.0	2	11.974	0.004	3107	1.8
Aroclor-1260	3	11.768	0.002	1276	2.2	3	12.558	0.004	2099	1.8
Aroclor-1260	4	12.170	0.002	725	2.4	4	13.278	0.000	1011	2.1
Aroclor-1260	5	12.283	0.005	237	1.9	NS	---			----
Total Col1Ave (5 peaks): 2.0						Total Col2Ave (4 peaks): 3.3 RPD = 48*				
Corrected Ave (4 peaks): 1.9						Corrected Ave (3 peaks): 1.9 RPD = 0				
Aroclor-1262	1	10.857	0.001	8221	36.6	1	11.250	-0.004	1362	1.3
Aroclor-1262	2	12.283	0.002	237	0.8	2	11.712	0.005	5024	5.6
Aroclor-1262	3	12.357	0.003	283	1.0	3	12.486	-0.004	1723	1.7
Aroclor-1262	4	13.022	0.002	390	1.6	4	13.278	-0.001	1011	1.1
Total Col1Ave (4 peaks): 10.0						Total Col2Ave (4 peaks): 2.4 RPD = 123*				
Corrected Ave (3 peaks): 1.1						Corrected Ave (3 peaks): 1.3 RPD = 18				
Aroclor-1268	1	12.283	0.002	237	0.3	1	12.486	-0.002	1723	0.6
Aroclor-1268	2	12.357	0.005	283	0.4	2	12.558	0.003	2099	0.7
Aroclor-1268	3	12.738	0.000	2563	4.1	3	12.954	0.003	1316	0.5
Aroclor-1268	4	13.524	-0.000	13610	7.4	4	13.763	-0.006	2391	0.2
Total Col1Ave (4 peaks): 3.0						Total Col2Ave (4 peaks): 0.5 RPD = 142*				
Corrected Ave (3 peaks): 1.6						Corrected Ave (3 peaks): 0.5 RPD = 112*				

Total PCB Area Col1 (5.962 - 13.830) = 998454 Col1 Total PCB = 0.3 ppm*

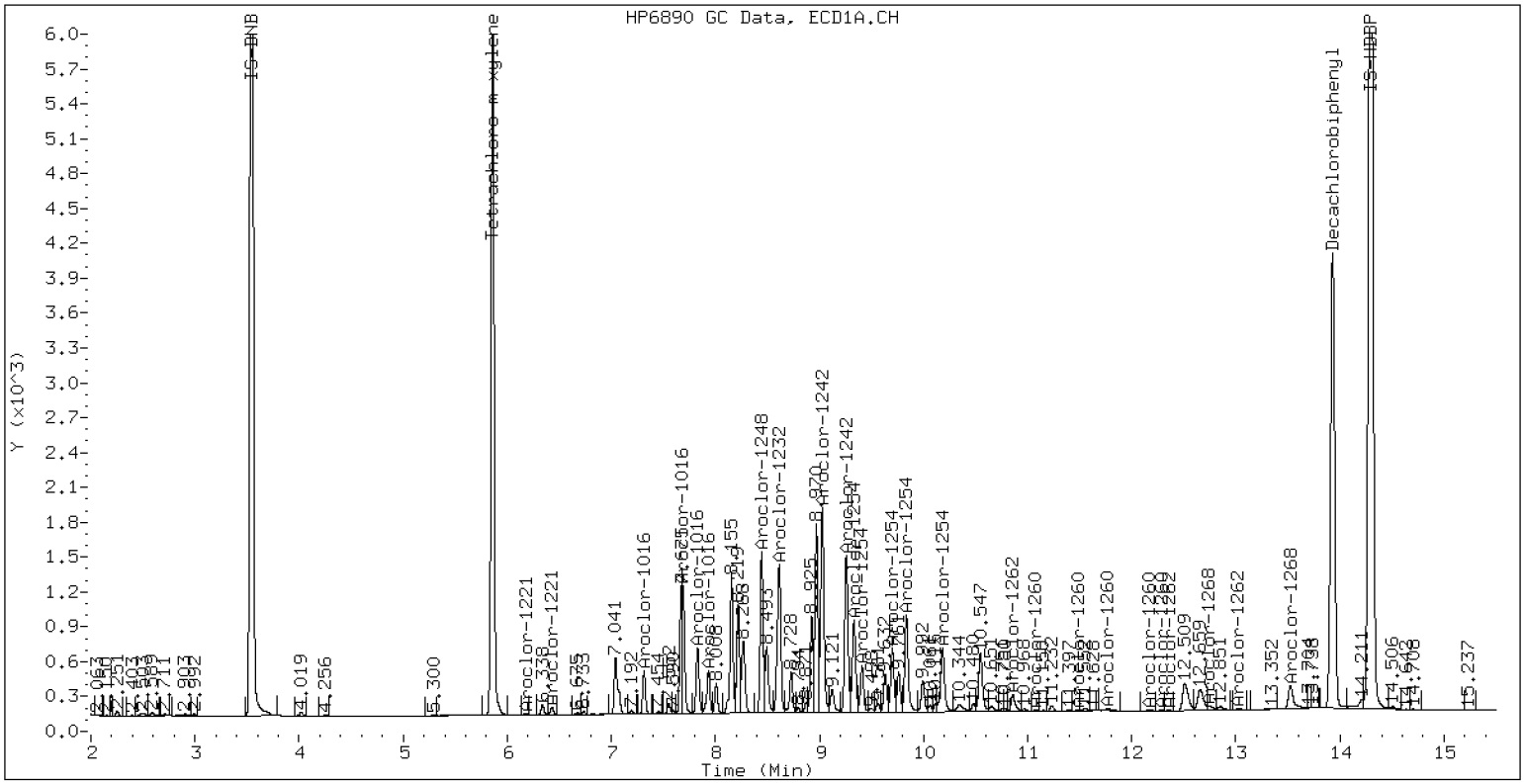
Total PCB Area Col2 (5.962 - 13.830) = 1832905 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

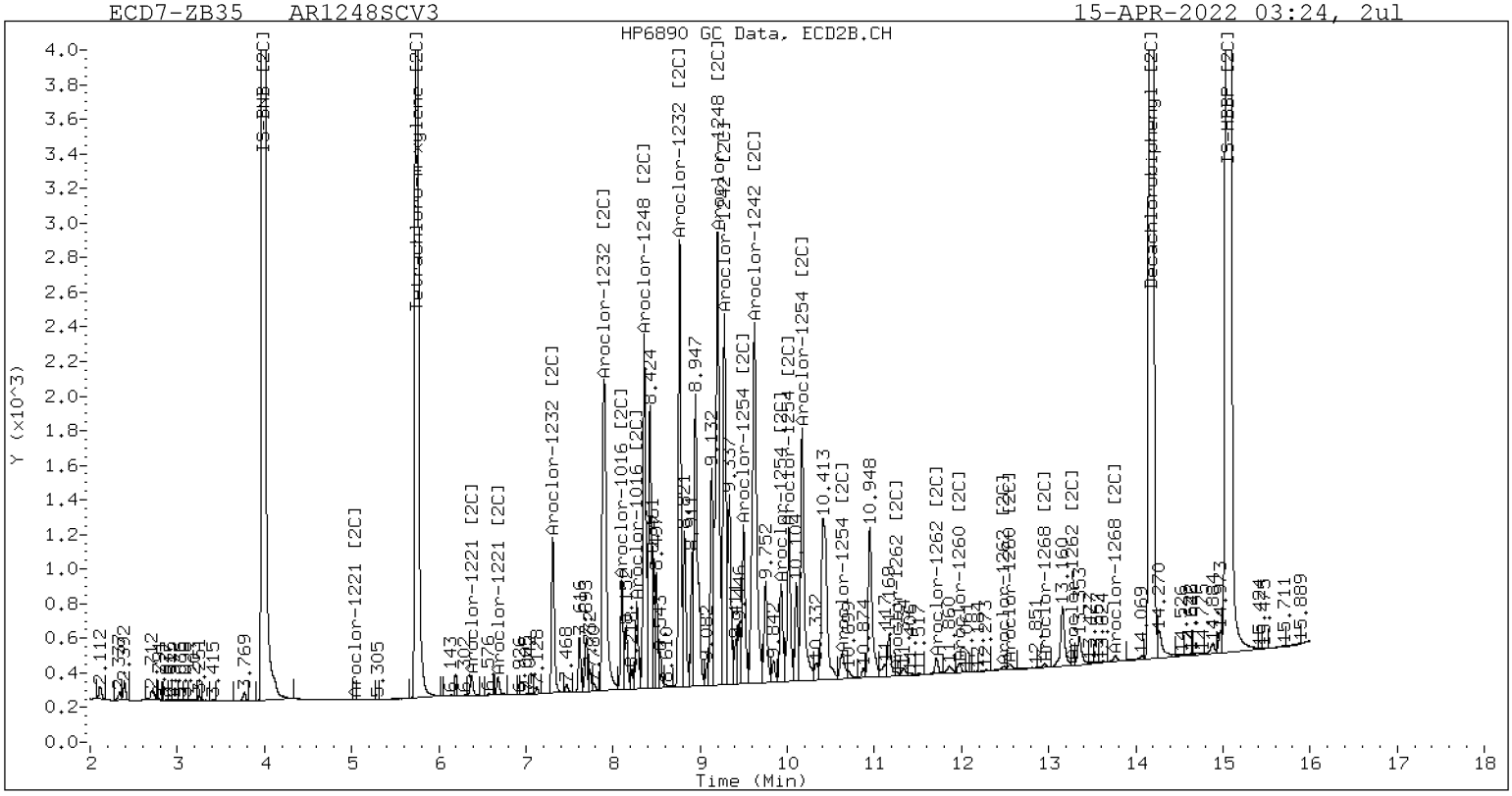
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 15-APR-2022 03:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 15-APR-2022 03:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	04142239ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKD0226	Injection Date:	04/15/22
Lab Sample ID:	SKD0226-SCV4	Injection Time:	03:46
Sequence Name:	AR1254SCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	260	0.0570570	0.0592775		4.0	+/-20
Aroclor 1254 [2C]	A	250.00	253	0.0505426	0.0509985		1.3	+/-20
Decachlorobiphenyl	A	40.000	40.7	0.8294275	0.8430695		1.6	+/-20
Tetrachlorometaxylene	A	40.000	39.5	1.0737180	1.0608600		-1.2	+/-20
Decachlorobiphenyl [2C]	A	40.000	46.7	1.1707920	1.3665600		16.7	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.0	1.0199080	0.9943434		-2.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142239ECD7.D
Data file 2: /220414.b/220414.b/04142239ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 15-APR-2022 03:46
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.861	-0.001	244794	5.748	-0.001	440425	39.5	39.0	1.3	Tetrachloro-m-xylene
13.933	0.002	218124	14.180	-0.001	1099415	40.7	46.7	13.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	461501	-5.0
Hexabromobiphenyl	571136	517452	-9.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	885861	-3.2
Hexabromobiphenyl	1789656	1609025	-10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	498	3.0	1	7.311	0.000	984	2.1
Aroclor-1016	2	7.675	-0.015	2273	3.9	2	7.901	-0.002	3244	3.0
Aroclor-1016	3	7.834	0.007	1217	5.4	3	8.107	0.006	531	1.3
Aroclor-1016	4	7.935	0.002	502	3.3	4	8.276	0.004	423	1.7
Total Col1Ave (4 peaks):					3.9	Total Col2Ave (4 peaks):				2.0 RPD = 65*
Corrected Ave (3 peaks):					3.4	Corrected Ave (3 peaks):				1.7 RPD = 68*
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.379	0.025	4779	36.5
Aroclor-1221	3	---			0.0	3	6.690	0.012	1256	5.3
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.311	-0.001	984	4.8
Aroclor-1232	3	7.675	-0.016	2273	10.1	3	7.901	-0.004	3244	7.7
Aroclor-1232	4	8.615	-0.001	8410	107.4	4	8.767	-0.000	36342	308.0
Col1Ave: <3 Quant Peaks						Col2Ave: 106.8				
Aroclor-1242	1	7.315	0.000	498	3.9	1	7.311	0.000	984	2.6
Aroclor-1242	2	7.675	-0.014	2273	5.3	2	7.901	-0.002	3244	3.9
Aroclor-1242	3	9.032	0.006	67072	402.7	3	9.278	-0.004	16087	63.6
Aroclor-1242	4	9.257	-0.001	20987	149.1	4	9.593	-0.035	76693	251.6
Total Col1Ave (4 peaks):					140.2	Total Col2Ave (4 peaks):				80.4 RPD = 54*
Corrected Ave (3 peaks):					52.8	Corrected Ave (3 peaks):				23.4 RPD = 77*
Aroclor-1248	1	8.445	0.000	18624	88.0	1	8.359	0.000	57095	152.9
Aroclor-1248	2	8.615	0.001	8410	34.5	2	8.767	0.002	36342	86.6
Aroclor-1248	3	9.032	0.006	67072	216.4	3	9.204	0.002	55368	90.4
Aroclor-1248	4	9.257	-0.001	20987	88.3	4	9.593	-0.031	76693	132.1
Total Col1Ave (4 peaks):					106.8	Total Col2Ave (4 peaks):				115.5 RPD = 8
Corrected Ave (3 peaks):					70.3	Corrected Ave (3 peaks):				103.0 RPD = 38
Aroclor-1254	1	9.333	-0.001	95176	259.6	1	9.499	-0.001	150129	255.1
Aroclor-1254	2	9.409	-0.000	33089	260.8	2	9.929	-0.001	57114	253.7
Aroclor-1254	3	9.699	-0.001	61588	261.7	3	10.020	-0.000	118253	252.3
Aroclor-1254	4	9.834	-0.001	112462	253.6	4	10.170	-0.002	258020	248.1
Aroclor-1254	5	10.178	-0.002	125132	264.3	5	10.618	-0.001	122384	257.2
Total Col1Ave (5 peaks):					260.0	Total Col2Ave (5 peaks):				253.3 RPD = 3
Corrected Ave (4 peaks):					258.9	Corrected Ave (4 peaks):				252.3 RPD = 3
Aroclor-1260	1	11.079	-0.000	5854	23.9	1	11.711	0.004	70801	106.4
Aroclor-1260	2	11.474	0.003	3683	27.9	2	11.972	0.002	43594	24.9
Aroclor-1260	3	11.767	0.001	14165	24.2	3	12.555	0.001	28563	24.5
Aroclor-1260	4	12.170	0.002	12902	43.5	4	13.280	0.002	1731	3.6
Aroclor-1260	5	12.283	0.004	400	3.2	NS	---			----
Total Col1Ave (5 peaks):					24.5	Total Col2Ave (4 peaks):				39.8 RPD = 47*
Corrected Ave (4 peaks):					19.8	Corrected Ave (3 peaks):				17.7 RPD = 11
Aroclor-1262	1	10.856	0.000	112936	503.4	1	11.252	-0.002	11740	11.1
Aroclor-1262	2	12.283	0.002	400	1.4	2	11.711	0.005	70801	78.3
Aroclor-1262	3	12.354	0.000	626	2.1	3	12.498	0.008	4978	4.8
Aroclor-1262	4	13.021	0.001	1005	4.1	4	13.280	0.000	1731	1.9
Total Col1Ave (4 peaks):					127.7	Total Col2Ave (4 peaks):				24.0 RPD = 137*
Corrected Ave (3 peaks):					2.5	Corrected Ave (3 peaks):				5.9 RPD = 80*
Aroclor-1268	1	12.283	0.002	400	0.5	1	12.498	0.010	4978	1.8
Aroclor-1268	2	12.354	0.003	626	0.9	2	12.555	-0.001	28563	9.7
Aroclor-1268	3	12.744	0.007	3057	4.9	3	12.953	0.002	1289	0.5
Aroclor-1268	4	13.526	0.001	12793	6.9	4	13.766	-0.003	2227	0.2
Total Col1Ave (4 peaks):					3.3	Total Col2Ave (4 peaks):				3.1 RPD = 8
Corrected Ave (3 peaks):					2.1	Corrected Ave (3 peaks):				0.8 RPD = 86*

Total PCB Area Col1 (5.962 - 13.830) = 1218996 Col1 Total PCB = 0.3 ppm*

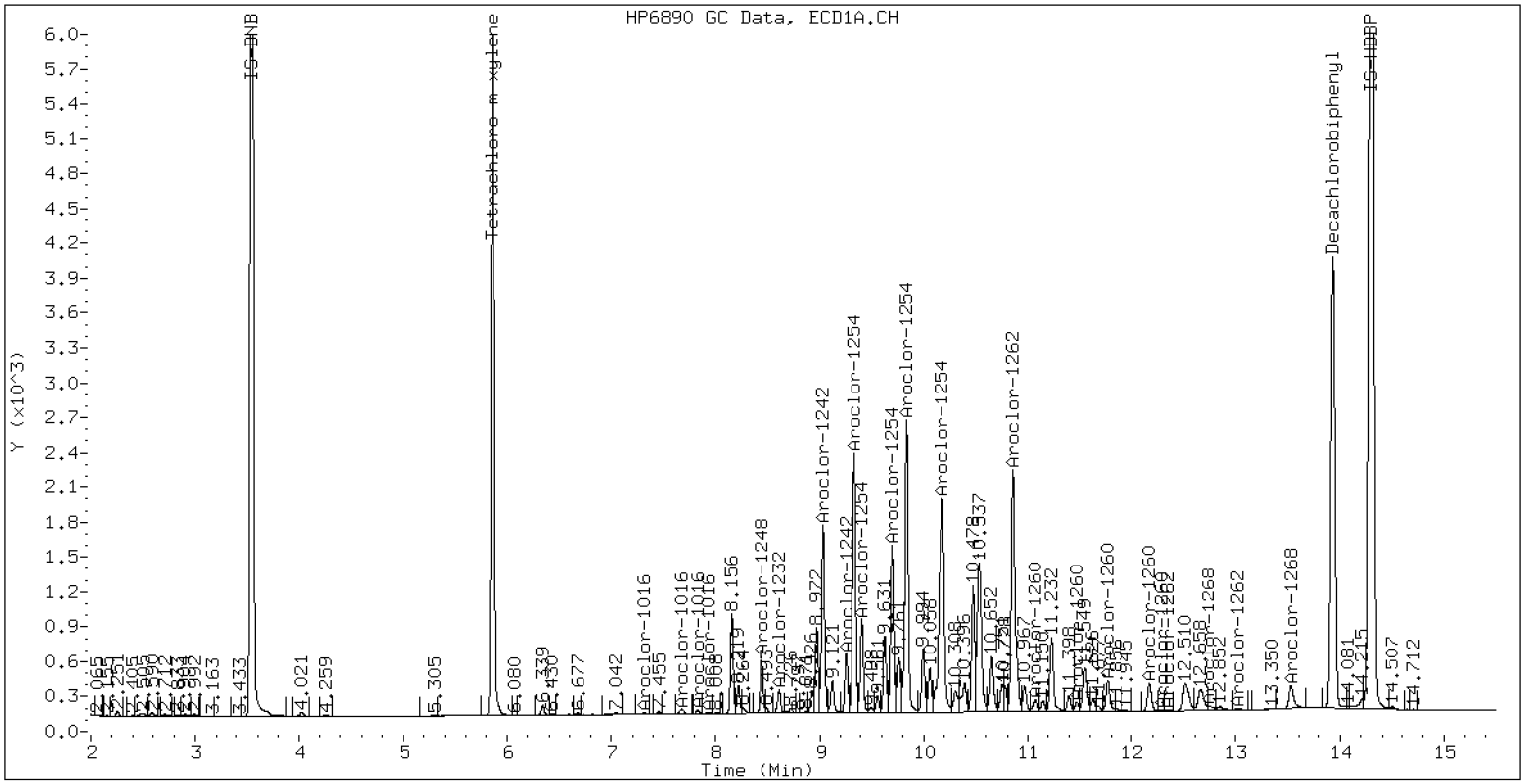
Total PCB Area Col2 (5.962 - 13.830) = 2421904 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

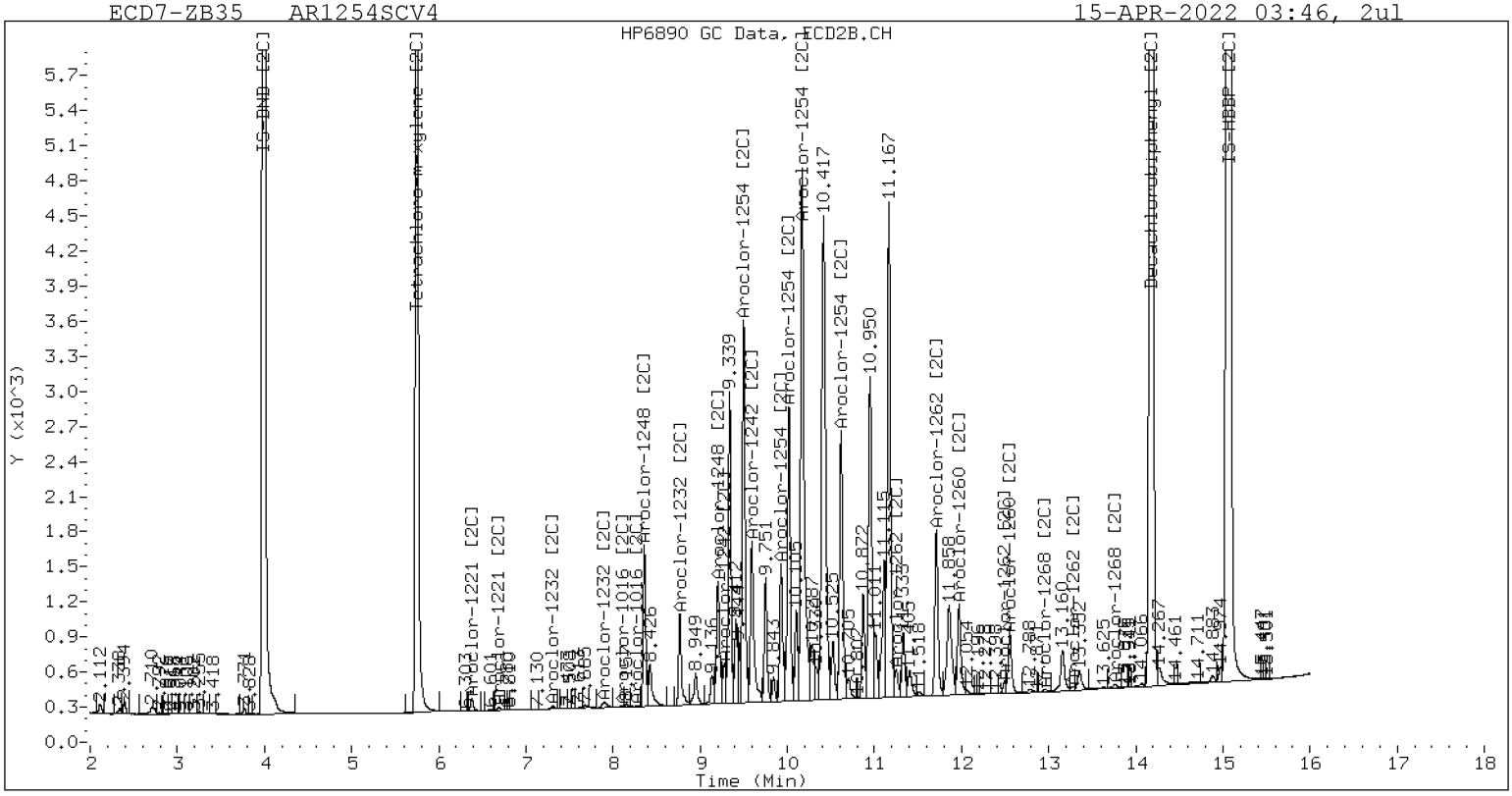
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 15-APR-2022 03:46, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 15-APR-2022 03:46, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	04142240ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKD0226	Injection Date:	04/15/22
Lab Sample ID:	SKD0226-SCV5	Injection Time:	04:08
Sequence Name:	AR2162SCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1221	A	250.00	271	0.0144528	0.0155759		8.6	+/-20
Aroclor 1221 [2C]	A	250.00	269	0.0127391	0.0134965		7.6	+/-20
Aroclor 1262	A	500.00	530	0.0408652	0.0432864		6.0	+/-20
Aroclor 1262 [2C]	A	500.00	552	0.0489977	0.0541091		10.5	+/-20
Decachlorobiphenyl	A	40.000	41.9	0.8294275	0.8678378		4.6	+/-20
Tetrachlorometaxylene	A	40.000	40.6	1.0737180	1.0903040		1.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	47.8	1.1707920	1.3992780		19.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.6	1.0199080	1.0084960		-1.1	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142240ECD7.D
Data file 2: /220414.b/220414.b/04142240ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 15-APR-2022 04:08
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.002	251744	5.746	-0.002	439972	40.6	39.6	2.7	Tetrachloro-m-xylene
13.930	-0.000	223936	14.180	-0.002	1114196	41.9	47.8	13.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	461787	-5.0
Hexabromobiphenyl	571136	516078	-9.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	872531	-4.6
Hexabromobiphenyl	1789656	1592530	-11.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	-0.000	4368	25.9	1	7.316	0.005	19564	41.4
Aroclor-1016	2	7.689	-0.000	12825	22.3	2	7.904	0.000	21712	20.3
Aroclor-1016	3	7.827	0.001	5512	24.5	3	8.104	0.004	9298	22.3
Aroclor-1016	4	7.934	0.001	3435	22.3	4	8.275	0.003	5173	20.9
Total Col1Ave (4 peaks):					23.7	Total Col2Ave (4 peaks):				26.2 RPD = 10
Corrected Ave (3 peaks):					23.0	Corrected Ave (3 peaks):				21.1 RPD = 8
Aroclor-1221	1	4.792	-0.000	10282	279.6	1	5.025	-0.000	15397	283.7
Aroclor-1221	2	6.182	-0.000	16953	266.5	2	6.354	-0.000	33652	260.8
Aroclor-1221	3	6.429	-0.001	40197	268.2	3	6.677	-0.001	61352	262.7
Total Col1Ave (3 peaks):					271.4	Total Col2Ave (3 peaks):				269.1 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.792	-0.003	10282	470.9	1	5.025	-0.005	15397	470.6
Aroclor-1232	2	6.182	-0.002	16953	399.5	2	7.316	0.004	19564	96.8
Aroclor-1232	3	7.689	-0.001	12825	57.2	3	7.904	-0.001	21712	52.3
Aroclor-1232	4	8.615	-0.001	2735	34.9	4	8.767	-0.000	5111	44.0
Total Col1Ave (4 peaks):					240.6	Total Col2Ave (4 peaks):				165.9 RPD = 37
Corrected Ave (3 peaks):					163.9	Corrected Ave (3 peaks):				64.4 RPD = 87*
Aroclor-1242	1	7.315	-0.000	4368	34.1	1	7.316	0.005	19564	53.4
Aroclor-1242	2	7.689	0.000	12825	30.0	2	7.904	0.001	21712	26.7
Aroclor-1242	3	9.033	0.006	22237	133.4	3	9.283	0.001	3130	12.6
Aroclor-1242	4	9.258	-0.000	4243	30.1	4	9.625	-0.003	5102	17.0
Total Col1Ave (4 peaks):					56.9	Total Col2Ave (4 peaks):				27.4 RPD = 70*
Corrected Ave (3 peaks):					31.4	Corrected Ave (3 peaks):				18.8 RPD = 50*
Aroclor-1248	1	8.445	0.000	3005	14.2	1	8.360	0.001	6560	17.8
Aroclor-1248	2	8.615	0.001	2735	11.2	2	8.767	0.002	5111	12.4
Aroclor-1248	3	9.033	0.006	22237	71.7	3	9.206	0.004	8926	14.8
Aroclor-1248	4	9.258	-0.000	4243	17.8	4	9.625	0.000	5102	8.9
Total Col1Ave (4 peaks):					28.7	Total Col2Ave (4 peaks):				13.5 RPD = 72*
Corrected Ave (3 peaks):					14.4	Corrected Ave (3 peaks):				12.0 RPD = 18
Aroclor-1254	1	9.334	0.000	24744	67.4	1	9.500	-0.001	43964	75.8
Aroclor-1254	2	9.409	-0.001	2115	16.7	2	9.929	-0.000	3004	13.5
Aroclor-1254	3	9.699	-0.001	4478	19.0	3	10.020	-0.001	7647	16.6
Aroclor-1254	4	9.801	-0.034	32946	74.2	4	10.199	0.027	227991	222.6
Aroclor-1254	5	10.156	-0.024	129022	272.4	5	10.617	-0.002	354885	757.2
Total Col1Ave (5 peaks):					89.9	Total Col2Ave (5 peaks):				217.1 RPD = 83*
Corrected Ave (4 peaks):					44.3	Corrected Ave (4 peaks):				82.1 RPD = 60*
Aroclor-1260	1	11.079	0.000	206461	846.2	1	11.707	-0.001	481868	731.3
Aroclor-1260	2	11.472	0.001	77947	591.7	2	11.969	-0.001	1196691	689.3
Aroclor-1260	3	11.766	0.000	376682	645.9	3	12.555	0.001	868104	753.4
Aroclor-1260	4	12.169	0.001	125898	425.8	4	13.279	0.001	528687	1104.7
Aroclor-1260	5	12.280	0.001	152283	1212.9	NS	---			----
Total Col1Ave (5 peaks):					744.5	Total Col2Ave (4 peaks):				819.7 RPD = 10
Corrected Ave (4 peaks):					627.4	Corrected Ave (3 peaks):				724.7 RPD = 14
Aroclor-1262	1	10.854	-0.002	119589	534.5	1	11.255	0.001	572977	546.0
Aroclor-1262	2	12.280	-0.001	152283	527.7	2	11.707	0.000	481868	538.4
Aroclor-1262	3	12.353	-0.001	156582	528.8	3	12.488	-0.001	570725	552.2
Aroclor-1262	4	13.019	-0.001	130025	528.4	4	13.279	-0.000	528687	572.4
Total Col1Ave (4 peaks):					529.9	Total Col2Ave (4 peaks):				552.3 RPD = 4
Corrected Ave (3 peaks):					528.3	Corrected Ave (3 peaks):				545.5 RPD = 3
Aroclor-1268	1	12.280	-0.001	152283	193.3	1	12.488	0.000	570725	208.8
Aroclor-1268	2	12.353	0.002	156582	216.0	2	12.555	-0.001	868104	297.9
Aroclor-1268	3	12.758	0.020	63836	103.4	3	12.949	-0.002	29404	11.5
Aroclor-1268	4	13.523	-0.002	57509	31.2	4	13.764	-0.005	166374	16.5
Total Col1Ave (4 peaks):					136.0	Total Col2Ave (4 peaks):				133.7 RPD = 2

Corrected Ave (3 peaks): 109.3 Corrected Ave (3 peaks): 78.9 RPD = 32

Total PCB Area Col1 (5.962 - 13.830) = 2802814 Col1 Total PCB = 0.7 ppm*

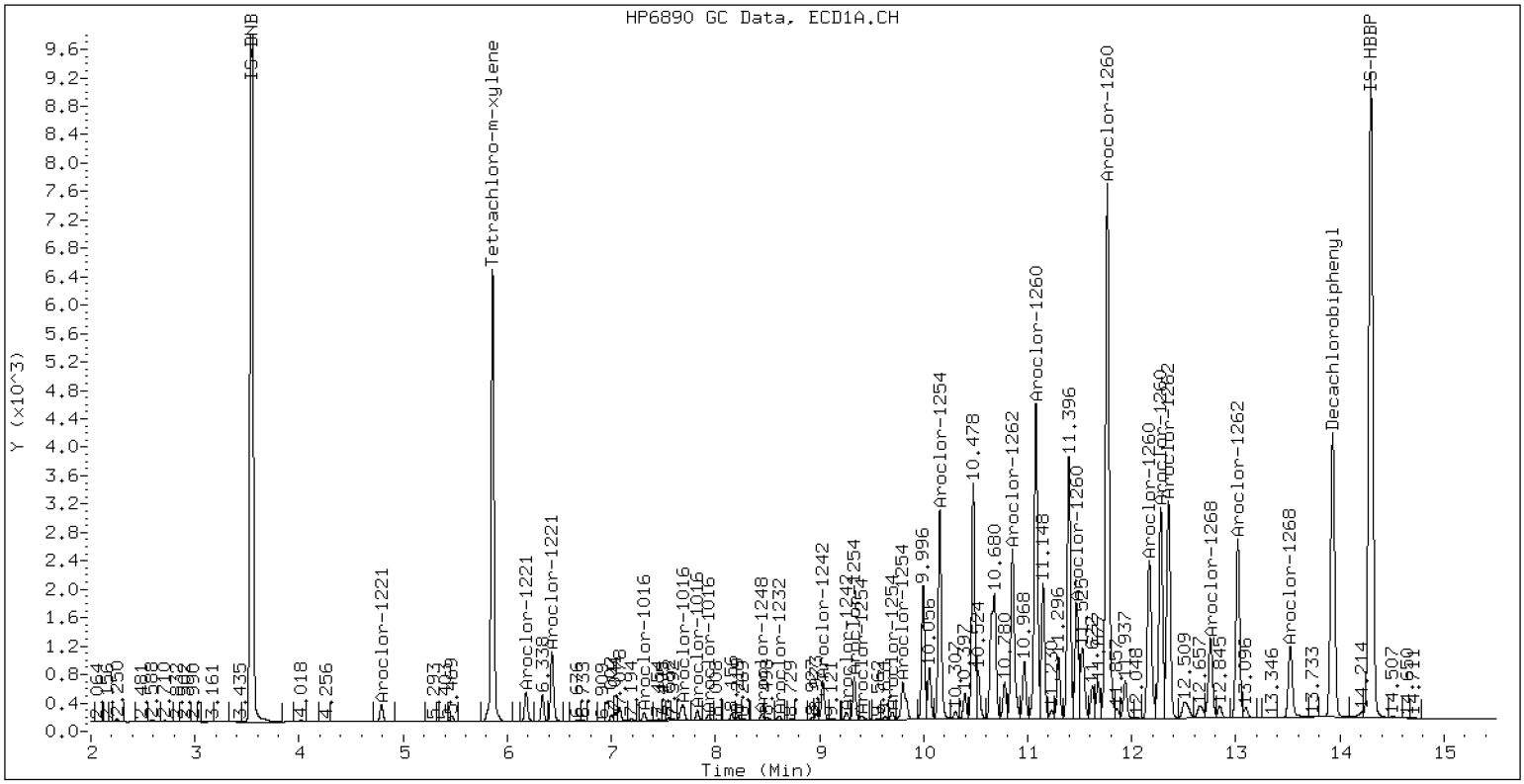
Total PCB Area Col2 (5.962 - 13.830) = 7568017 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

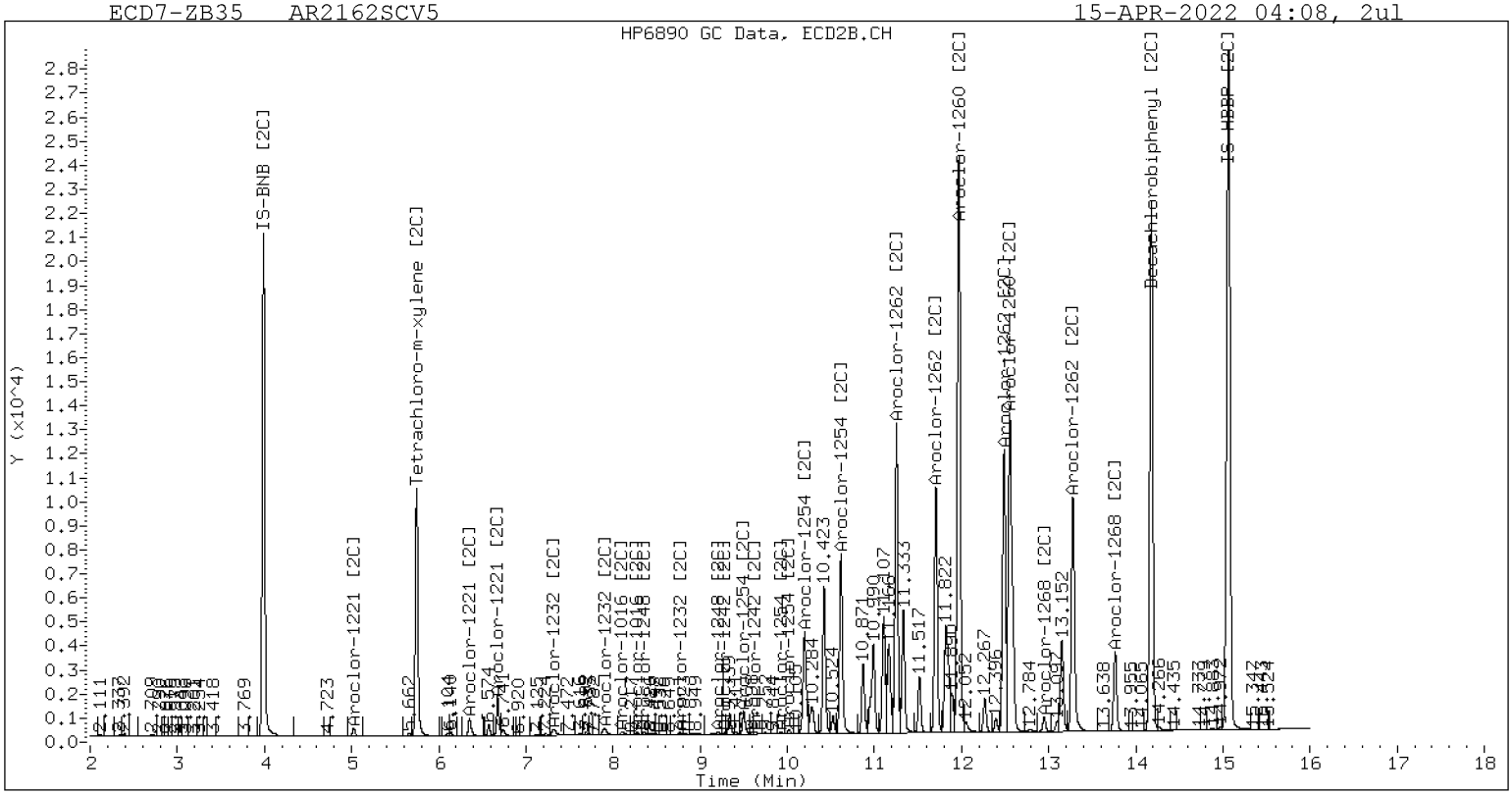
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 15-APR-2022 04:08, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 15-APR-2022 04:08, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	04142241ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKD0226	Injection Date:	04/15/22
Lab Sample ID:	SKD0226-SCV6	Injection Time:	04:29
Sequence Name:	AR3268SCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1232	A	250.00	259	0.0158933	0.0169595		3.6	+/-20
Aroclor 1232 [2C]	A	250.00	267	0.0175589	0.0187259		6.8	+/-20
Aroclor 1268	A	250.00	276	0.1539621	0.1705277		10.4	+/-20
Aroclor 1268 [2C]	A	250.00	273	0.2300015	0.2501562		9.2	+/-20
Decachlorobiphenyl	A	40.000	59.8	0.8294275	1.2396700		49.5	+/-20
Tetrachlorometaxylene	A	40.000	41.4	1.0737180	1.1121390		3.6	+/-20
Decachlorobiphenyl [2C]	A	40.000	76.8	1.1707920	2.2479620		92.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.4	1.0199080	1.0295200		0.9	+/-20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220414.b/04142241ECD7.D
Data file 2: /220414.b/220414.b/04142241ECD7.D
Method: \\target\share\chem4\ecd7.i\220414.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 15-APR-2022 04:29
Report Date: 04/16/2022 17:01
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.860	-0.002	254603	5.747	-0.002	447665	41.4	40.4	2.6	Tetrachloro-m-xylene
13.931	0.001	321268	14.182	0.001	1783460	59.8	76.8	24.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	457862	-5.8
Hexabromobiphenyl	571136	518312	-9.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	869658	-5.0
Hexabromobiphenyl	1789656	1586735	-11.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.315	0.000	18307	109.4	1	7.312	0.001	53523	113.7
Aroclor-1016	2	7.689	-0.000	60217	105.4	2	7.903	-0.001	109657	102.7
Aroclor-1016	3	7.827	0.001	23899	107.2	3	8.102	0.002	42255	101.7
Aroclor-1016	4	7.934	0.001	16567	108.3	4	8.273	0.002	25821	104.5
Total Col1Ave (4 peaks):				107.6		Total Col2Ave (4 peaks):			105.6	RPD = 2
Corrected Ave (3 peaks):				107.0		Corrected Ave (3 peaks):			103.0	RPD = 4
Aroclor-1221	1	4.792	0.000	5496	150.7	1	5.026	0.001	8555	158.1
Aroclor-1221	2	6.182	-0.001	9863	156.4	2	6.355	0.001	20612	160.3
Aroclor-1221	3	6.430	-0.000	29869	201.0	3	6.678	0.000	46815	201.1
Total Col1Ave (3 peaks):				169.4		Total Col2Ave (3 peaks):			173.2	RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.792	-0.003	5496	253.9	1	5.026	-0.003	8555	262.4
Aroclor-1232	2	6.182	-0.002	9863	234.4	2	7.312	-0.000	53523	265.8
Aroclor-1232	3	7.689	-0.001	60217	270.7	3	7.903	-0.002	109657	265.1
Aroclor-1232	4	8.614	-0.002	21488	276.7	4	8.766	-0.002	31829	274.8
Total Col1Ave (4 peaks):				258.9		Total Col2Ave (4 peaks):			267.0	RPD = 3
Corrected Ave (3 peaks):				253.0		Corrected Ave (3 peaks):			264.4	RPD = 4
Aroclor-1242	1	7.315	0.000	18307	144.0	1	7.312	0.001	53523	146.6
Aroclor-1242	2	7.689	-0.000	60217	141.9	2	7.903	-0.000	109657	135.4
Aroclor-1242	3	9.027	0.001	22963	139.0	3	9.281	-0.001	32271	130.0
Aroclor-1242	4	9.259	0.001	19441	139.2	4	9.629	0.001	38416	128.4
Total Col1Ave (4 peaks):				141.0		Total Col2Ave (4 peaks):			135.1	RPD = 4
Corrected Ave (3 peaks):				140.0		Corrected Ave (3 peaks):			131.3	RPD = 6
Aroclor-1248	1	8.444	0.000	17840	85.0	1	8.359	0.001	27183	74.2
Aroclor-1248	2	8.614	0.000	21488	88.8	2	8.766	0.000	31829	77.3
Aroclor-1248	3	9.027	0.000	22963	74.7	3	9.202	0.001	42670	71.0
Aroclor-1248	4	9.259	0.001	19441	82.5	4	9.629	0.004	38416	67.4
Total Col1Ave (4 peaks):				82.7		Total Col2Ave (4 peaks):			72.5	RPD = 13
Corrected Ave (3 peaks):				80.7		Corrected Ave (3 peaks):			70.8	RPD = 13
Aroclor-1254	1	9.332	-0.001	6993	19.2	1	9.499	-0.001	7186	12.4
Aroclor-1254	2	9.409	-0.000	3273	26.0	2	9.931	0.002	3814	17.3
Aroclor-1254	3	9.701	0.001	4068	17.4	3	10.021	0.000	6047	13.1
Aroclor-1254	4	9.837	0.002	7049	16.0	4	10.175	0.003	13499	13.2
Aroclor-1254	5	10.184	0.004	5900	12.6	5	10.621	0.002	4065	8.7
Total Col1Ave (5 peaks):				18.2		Total Col2Ave (5 peaks):			13.0	RPD = 34
Corrected Ave (4 peaks):				16.3		Corrected Ave (4 peaks):			11.9	RPD = 31
Aroclor-1260	1	11.080	0.001	40947	167.1	1	11.703	-0.004	149843	228.2
Aroclor-1260	2	11.517	0.046	51145	386.5	2	11.969	-0.001	66461	38.4
Aroclor-1260	3	11.766	0.000	26962	46.0	3	12.555	0.001	798155	695.2
Aroclor-1260	4	12.171	0.003	1129	3.8	4	13.278	0.000	282479	592.4
Aroclor-1260	5	12.281	0.002	216654	1718.2	NS	---			----
Total Col1Ave (5 peaks):				464.3		Total Col2Ave (4 peaks):			388.6	RPD = 18
Corrected Ave (4 peaks):				150.9		Corrected Ave (3 peaks):			286.3	RPD = 62*
Aroclor-1262	1	10.856	0.001	2490	11.1	1	11.255	0.001	104292	99.8
Aroclor-1262	2	12.281	-0.000	216654	747.6	2	11.703	-0.003	149843	168.0
Aroclor-1262	3	12.352	-0.002	199209	669.8	3	12.488	-0.002	746224	724.7
Aroclor-1262	4	13.019	-0.001	78954	319.5	4	13.278	-0.001	282479	307.0
Total Col1Ave (4 peaks):				437.0		Total Col2Ave (4 peaks):			324.8	RPD = 29
Corrected Ave (3 peaks):				333.5		Corrected Ave (3 peaks):			191.6	RPD = 54*
Aroclor-1268	1	12.281	-0.000	216654	273.9	1	12.488	-0.001	746224	274.0
Aroclor-1268	2	12.352	0.000	199209	273.6	2	12.555	-0.001	798155	274.9
Aroclor-1268	3	12.737	-0.000	171734	277.1	3	12.951	-0.000	695687	272.5
Aroclor-1268	4	13.525	0.000	517235	279.4	4	13.770	0.001	2721576	270.3
Total Col1Ave (4 peaks):				276.0		Total Col2Ave (4 peaks):			272.9	RPD = 1

Corrected Ave (3 peaks): 274.9 Corrected Ave (3 peaks): 272.3 RPD = 1

Total PCB Area Col1 (5.962 - 13.830) = 1868113 Col1 Total PCB = 0.5 ppm*

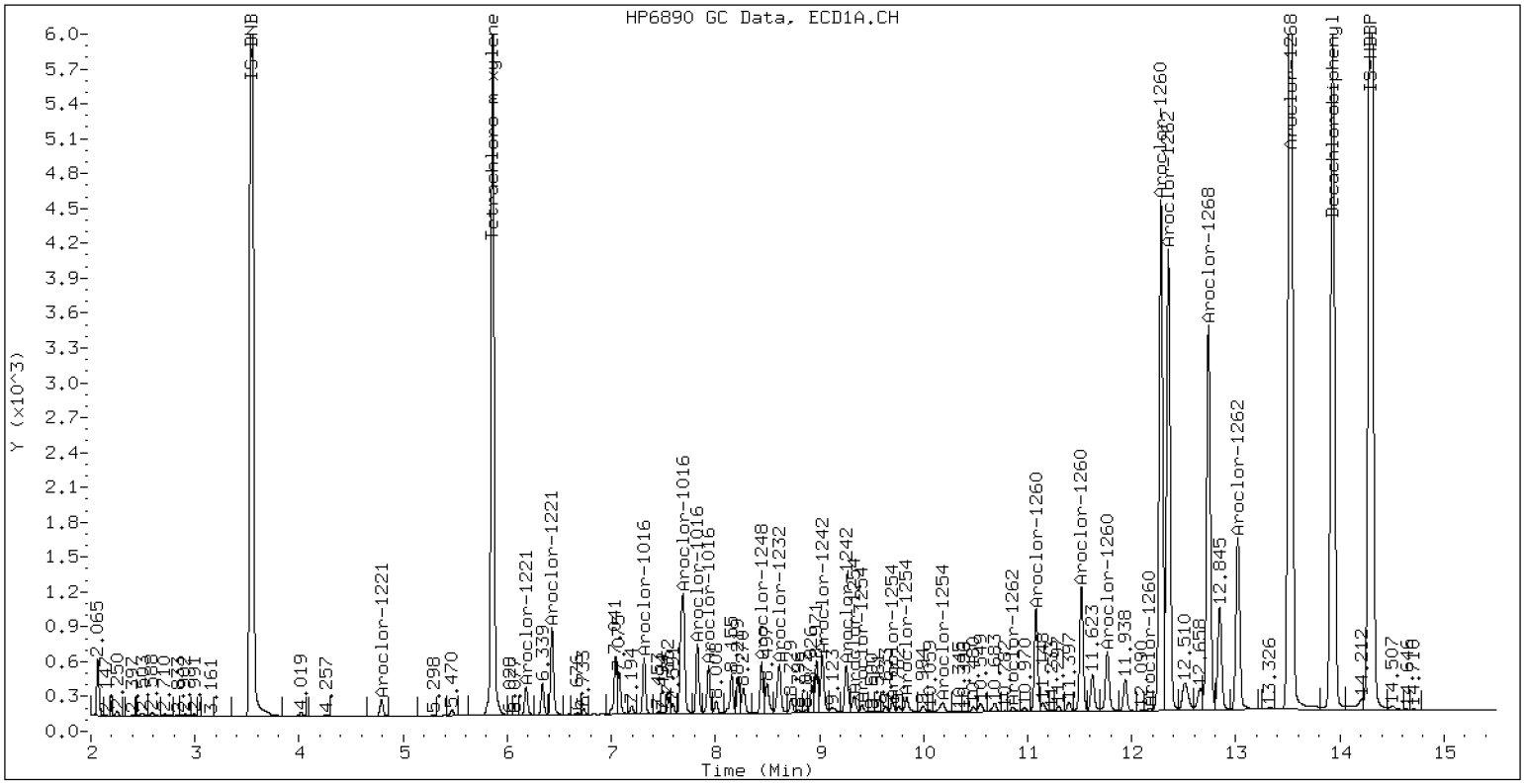
Total PCB Area Col2 (5.962 - 13.830) = 6603707 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

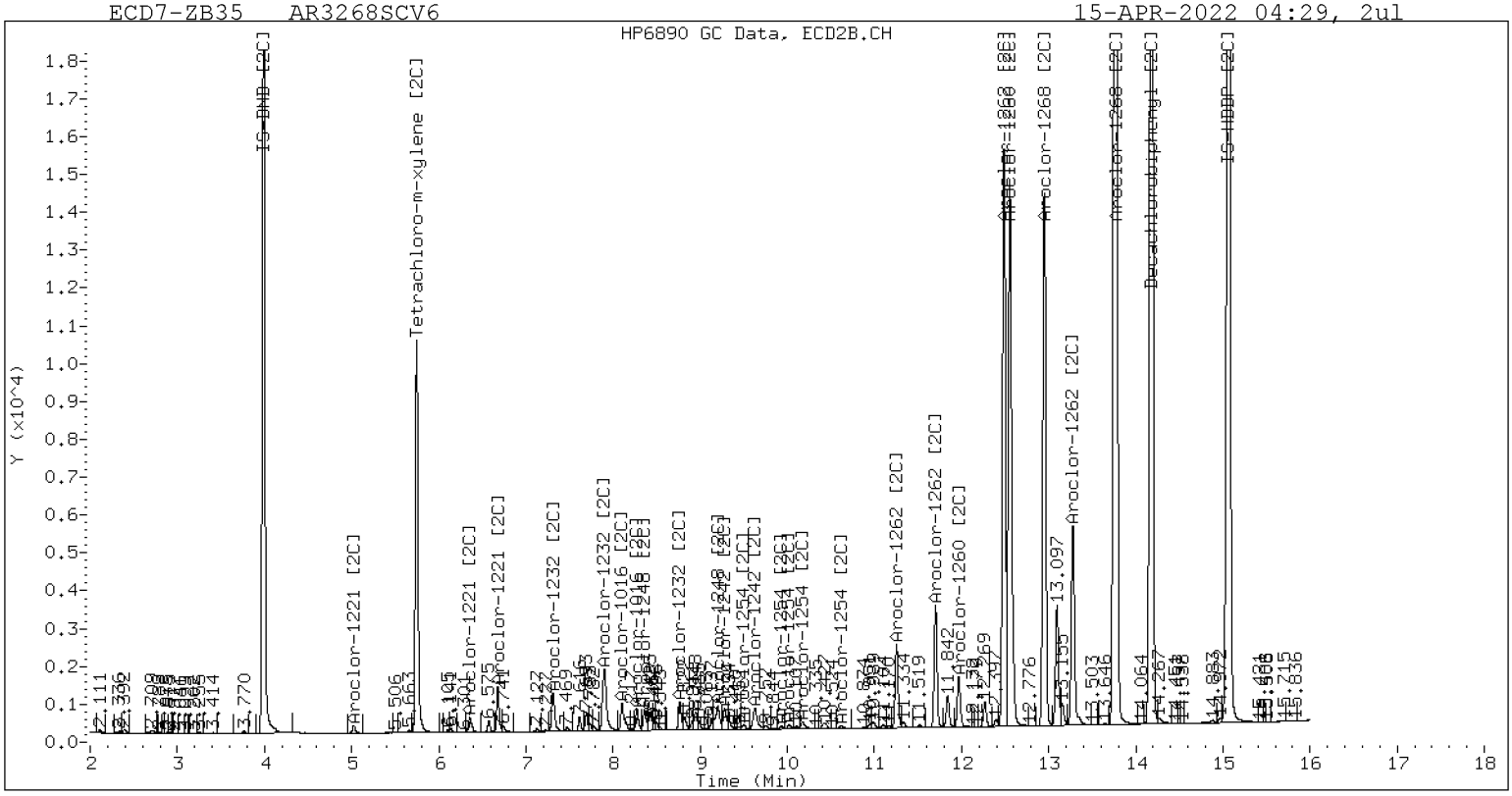
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 15-APR-2022 04:29, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 15-APR-2022 04:29, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	06132219ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKF0183	Injection Date:	06/13/22
Lab Sample ID:	SKF0183-CCV1	Injection Time:	22:36
Sequence Name:	AR1248CCV1		

COMPOUND	TYPE	CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
		STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	279	0.0434701	0.0486912		11.7	+/-20
Aroclor-1248 (1)	A	250.00	267		0.0392582			
Aroclor-1248 (2)	A	250.00	286		0.0483296			
Aroclor-1248 (3)	A	250.00	286		0.0614026			
Aroclor-1248 (4)	A	250.00	278		0.0457743			
Aroclor 1248 [2C]	A	250.00	256	0.0448386	0.0454561		2.2	+/-20
Aroclor-1248 (1) [2C]	A	250.00	256		0.0345758			
Aroclor-1248 (2) [2C]	A	250.00	276		0.0418821			
Aroclor-1248 (3) [2C]	A	250.00	223		0.0494065			
Aroclor-1248 (4) [2C]	A	250.00	267		0.0559599			
Decachlorobiphenyl	A	40.000	36.9	0.8294275	0.7648511		-7.8	+/-20
Tetrachlorometaxylene	A	40.000	40.6	1.0737180	1.0894070		1.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.3	1.1707920	1.2084800		3.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	41.4	1.0199080	1.0559920		3.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132219ECD7.D
Data file 2: /220613.b/220613.b/06132219ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV1
Client ID:
Injection Date: 13-JUN-2022 22:36
Report Date: 06/15/2022 10:15
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.859	-0.002	204638	5.751	0.002	395674	40.6	41.4	2.0	Tetrachloro-m-xylene
13.933	0.002	237279	14.185	-0.002	1103373	36.9	41.3	11.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	375687	-22.7
Hexabromobiphenyl	571136	620458	8.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	749388	-18.1
Hexabromobiphenyl	1789656	1826051	2.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1248	1	8.446	0.001	46090	267.5	1	8.363	0.000	80971	256.4
Aroclor-1248	2	8.617	0.003	56740	285.8	2	8.770	0.000	98081	276.4
Aroclor-1248	3	9.032	0.005	72088	285.7	3	9.210	0.000	115702	223.3
Aroclor-1248	4	9.265	0.007	53740	277.8	4	9.633	0.000	131049	266.8

Total Col1Ave (4 peaks): 279.2 Total Col2Ave (4 peaks): 255.7 RPD = 9

Corrected Ave (3 peaks): 277.0 Corrected Ave (3 peaks): 248.8 RPD = 11

CalAmt %D: 11.7 CalAmt %D: 2.3

Total PCB Area Col1 (5.962 - 13.830) = 979152 Col1 Total PCB = 0.3 ppm*

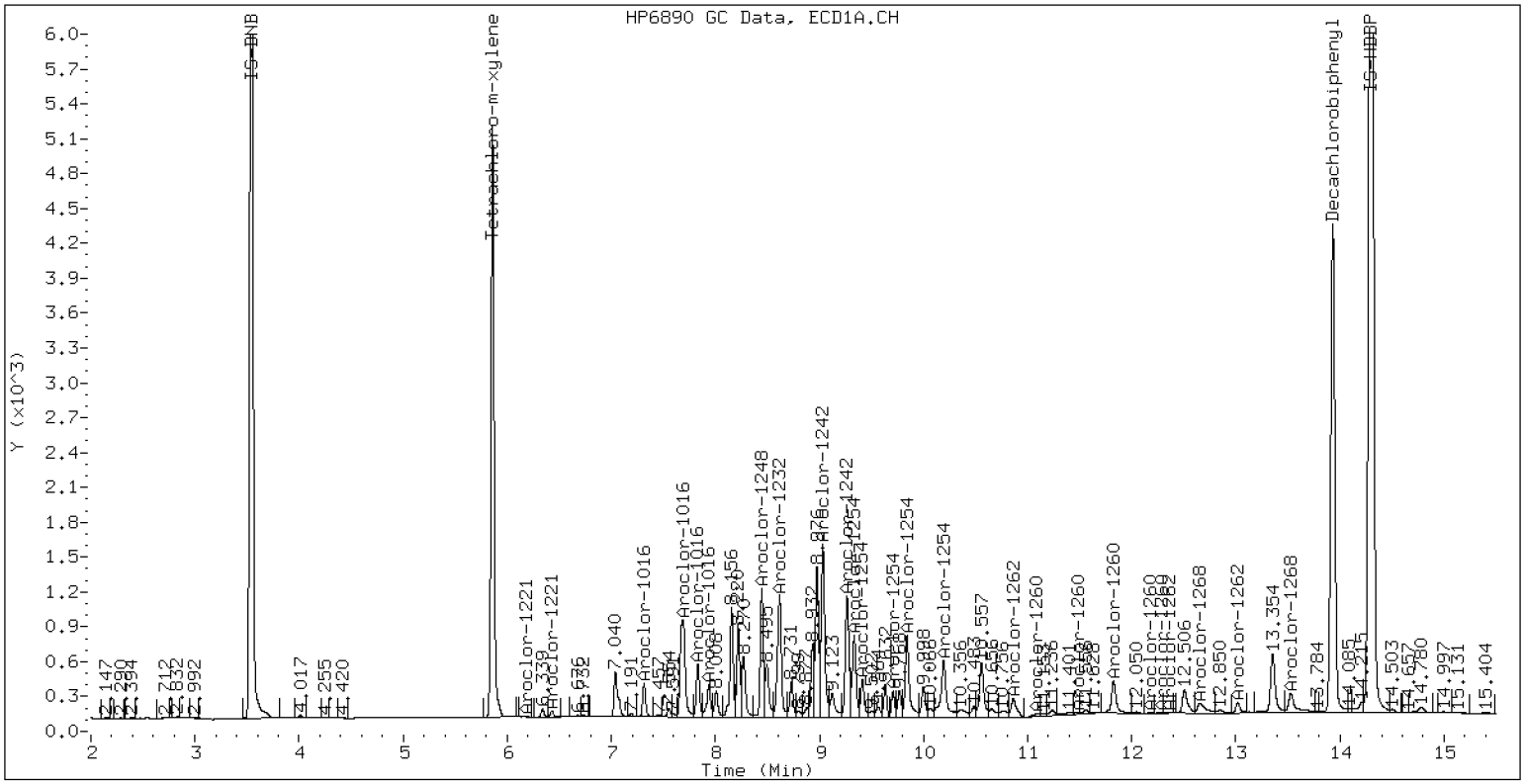
Total PCB Area Col2 (5.962 - 13.830) = 1629227 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

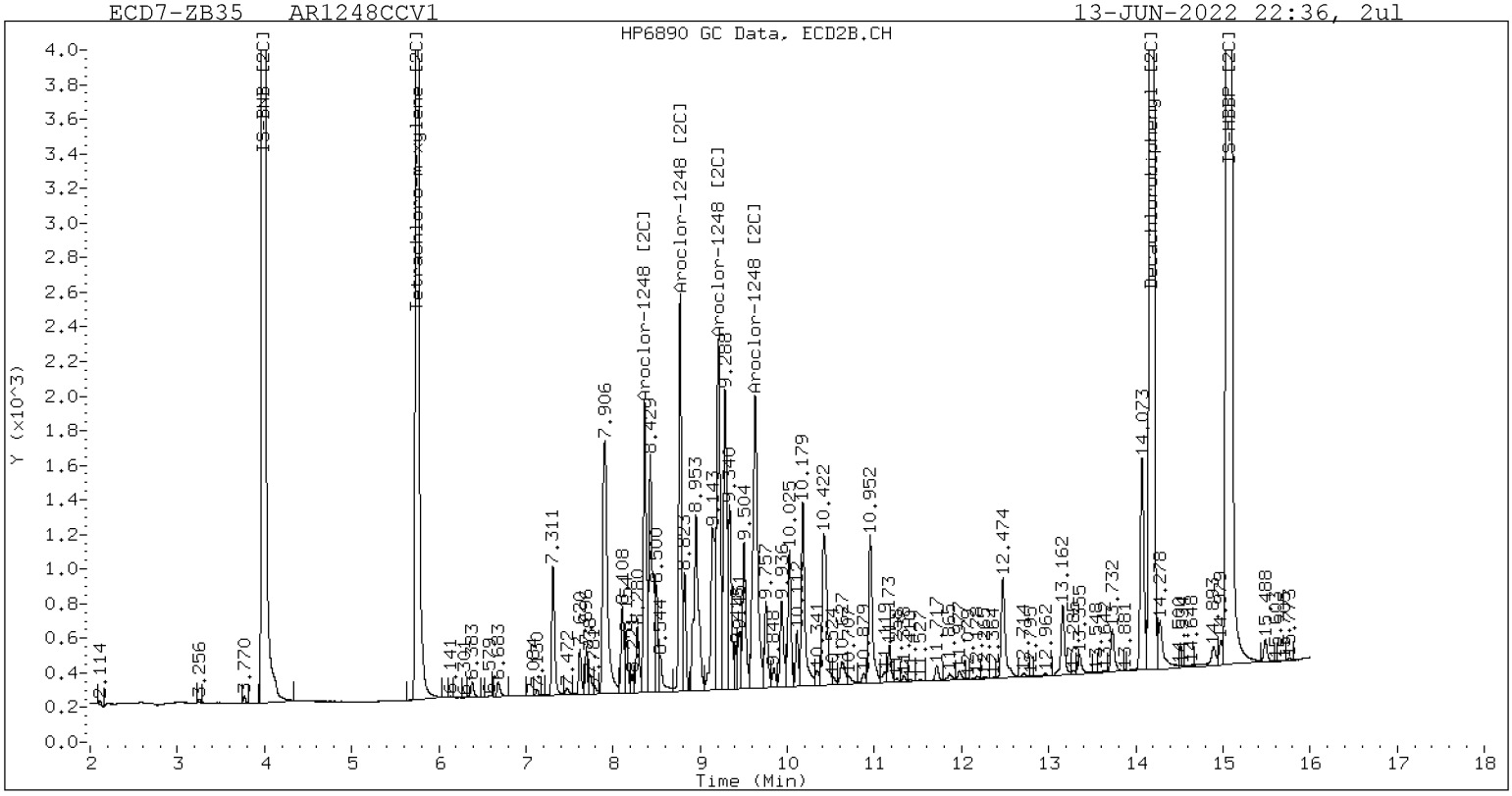
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 13-JUN-2022 22:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV1 13-JUN-2022 22:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Instrument ID:	ECD7	Calibration:	FD00045
Lab File ID:	06132220ECD7.D	Calibration Date:	04/14/2022
Sequence:	SKF0183	Injection Date:	06/13/22
Lab Sample ID:	SKF0183-CCV2	Injection Time:	22:57
Sequence Name:	AR1660CCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	268	0.0486878	0.0520910		7.3	+/-20
Aroclor-1016 (1)	A	250.00	251	0.0292447	0.0293416		0.4	
Aroclor-1016 (2)	A	250.00	265	0.0998488	0.1060354		6.0	
Aroclor-1016 (3)	A	250.00	275	0.0389354	0.0428584		10.0	
Aroclor-1016 (4)	A	250.00	282	0.0267225	0.0301287		12.8	
Aroclor 1016 [2C]	A	250.00	268	0.0506246	0.0573654		7.1	+/-20
Aroclor-1016 (1) [2C]	A	250.00	240	0.0433196	0.0415315		-4.0	
Aroclor-1016 (2) [2C]	A	250.00	317	0.0982149	0.1246120		26.8	
Aroclor-1016 (3) [2C]	A	250.00	267	0.0382354	0.0408283		6.8	
Aroclor-1016 (4) [2C]	A	250.00	247	0.0227284	0.0224897		-1.2	
Aroclor 1260	A	250.00	226	0.0427870	0.0390822		-9.7	+/-20
Aroclor-1260 (1)	A	250.00	200	0.0378196	0.0302748		-20.0	
Aroclor-1260 (2)	A	250.00	243	0.0204220	0.0198558		-2.8	
Aroclor-1260 (3)	A	250.00	257	0.0903972	0.0928001		2.8	
Aroclor-1260 (4)	A	250.00	181	0.0458340	0.0332028		-27.6	
Aroclor-1260 (5)	A	250.00	248	0.0194622	0.0192776		-0.8	
Aroclor 1260 [2C]	A	250.00	232	0.0505597	0.0455998		-7.4	+/-20
Aroclor-1260 (1) [2C]	A	250.00	226	0.0330997	0.0299821		-9.6	
Aroclor-1260 (2) [2C]	A	250.00	214	0.0872162	0.0745937		-14.4	
Aroclor-1260 (3) [2C]	A	250.00	229	0.0578805	0.0530829		-8.4	
Aroclor-1260 (4) [2C]	A	250.00	257	0.0240422	0.0247405		2.8	
Decachlorobiphenyl	A	40.000	38.1	0.8294275	0.7903108		-4.8	+/-20
Tetrachlorometaxylene	A	40.000	40.6	1.0737180	1.0913190		1.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	45.9	1.1707920	1.3438920		14.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	46.7	1.0199080	1.1917710		16.8	+/-20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /220613.b/06132220ECD7.D
Data file 2: /220613.b/220613.b/06132220ECD7.D
Method: \\target\share\chem4\ecd7.i\220613.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV2
Client ID:
Injection Date: 13-JUN-2022 22:57
Report Date: 06/15/2022 10:15
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.856	-0.005	184135	5.749	0.000	346542	40.7	46.7	13.9	Tetrachloro-m-xylene
13.932	0.001	215628	14.187	0.000	966687	38.1	45.9	18.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	485900	337454	-30.6
Hexabromobiphenyl	571136	545679	-4.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	914958	581558	-36.4
Hexabromobiphenyl	1789656	1438638	-19.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 14-APR-2022
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.314	-0.001	30942	250.8	1	7.312	0.000	75478	239.7
Aroclor-1016	2	7.689	0.000	111819	265.5	2	7.907	0.000	226466	317.2
Aroclor-1016	3	7.828	0.002	45196	275.2	3	8.106	0.000	74200	267.0
Aroclor-1016	4	7.935	0.002	31772	281.9	4	8.278	0.000	40872	247.4

Total Col1Ave (4 peaks): 268.3 Total Col2Ave (4 peaks): 267.8 RPD = 0
Corrected Ave (3 peaks): 263.8 Corrected Ave (3 peaks): 251.3 RPD = 5

CalAmt %D: 7.3 CalAmt %D: 7.1

Aroclor-1260	1	11.082	0.003	51626	200.1	1	11.712	0.000	134792	226.5
Aroclor-1260	2	11.475	0.004	33859	243.1	2	11.973	0.000	335354	213.8
Aroclor-1260	3	11.768	0.003	158247	256.6	3	12.559	0.000	238647	229.3
Aroclor-1260	4	12.174	0.006	56619	181.1	4	13.285	0.000	111227	257.3
Aroclor-1260	5	12.282	0.003	32873	247.6	NS	---			----

Total Col1Ave (5 peaks): 225.7 Total Col2Ave (4 peaks): 231.7 RPD = 3
Corrected Ave (4 peaks): 218.0 Corrected Ave (3 peaks): 223.2 RPD = 2

CalAmt %D: -9.7 CalAmt %D: -7.3

Total PCB Area Col1 (5.962 - 13.830) = 1770433 Col1 Total PCB = 0.6 ppm*

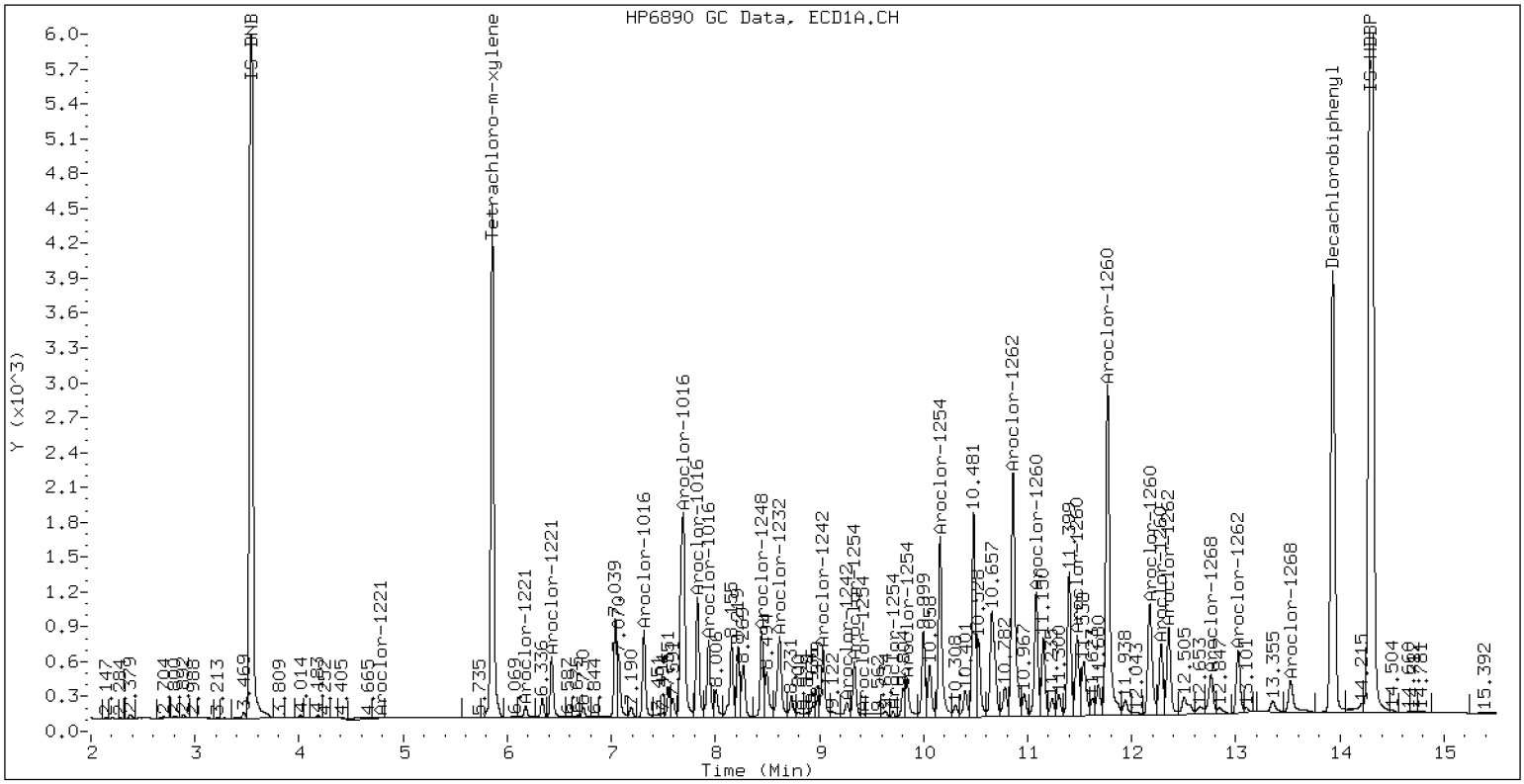
Total PCB Area Col2 (5.962 - 13.830) = 3307672 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

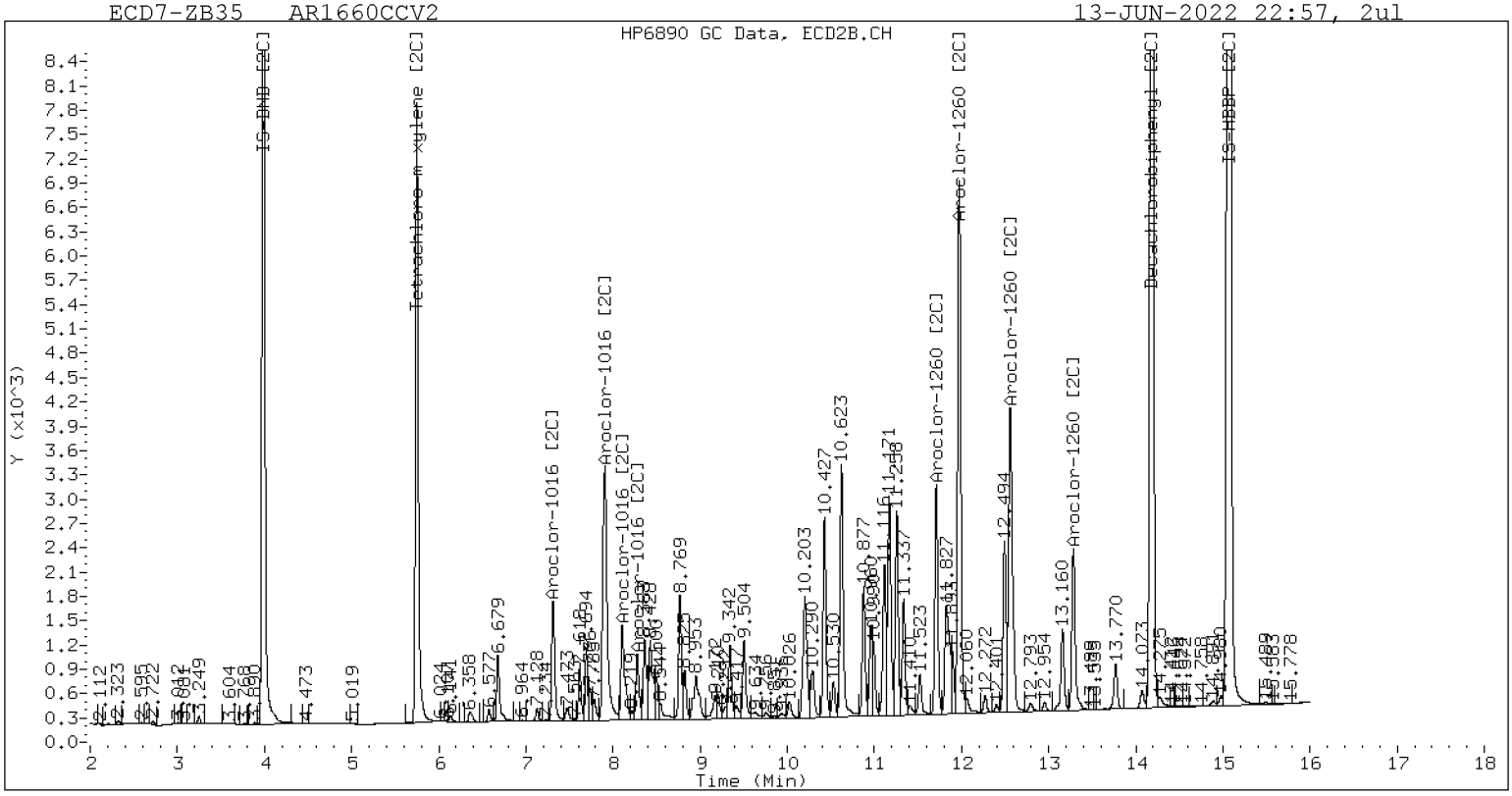
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 13-JUN-2022 22:57, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV2 13-JUN-2022 22:57, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKD0226	Instrument:	ECD7
		Calibration:	FD00045

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SKD0226-CAL1	04142225ECD7.D	04142225ECD7.D	NA	04/14/22 22:44
Cal Standard	SKD0226-CAL2	04142226ECD7.D	04142226ECD7.D	NA	04/14/22 23:06
Cal Standard	SKD0226-CAL3	04142227ECD7.D	04142227ECD7.D	NA	04/14/22 23:27
Cal Standard	SKD0226-CAL4	04142228ECD7.D	04142228ECD7.D	NA	04/14/22 23:49
Cal Standard	SKD0226-CAL5	04142229ECD7.D	04142229ECD7.D	NA	04/15/22 00:10
Cal Standard	SKD0226-CAL6	04142230ECD7.D	04142230ECD7.D	NA	04/15/22 00:32
Cal Standard	SKD0226-CAL7	04142231ECD7.D	04142231ECD7.D	NA	04/15/22 00:53
Cal Standard	SKD0226-CAL8	04142232ECD7.D	04142232ECD7.D	NA	04/15/22 01:15
Cal Standard	SKD0226-CAL9	04142233ECD7.D	04142233ECD7.D	NA	04/15/22 01:37
Cal Standard	SKD0226-CALA	04142234ECD7.D	04142234ECD7.D	NA	04/15/22 01:58
Cal Standard	SKD0226-CALB	04142235ECD7.D	04142235ECD7.D	NA	04/15/22 02:20
Secondary Cal Check	SKD0226-SCV1	04142236ECD7.D	04142236ECD7.D	NA	04/15/22 02:41
Secondary Cal Check	SKD0226-SCV2	04142237ECD7.D	04142237ECD7.D	NA	04/15/22 03:03
Secondary Cal Check	SKD0226-SCV3	04142238ECD7.D	04142238ECD7.D	NA	04/15/22 03:24
Secondary Cal Check	SKD0226-SCV4	04142239ECD7.D	04142239ECD7.D	NA	04/15/22 03:46
Secondary Cal Check	SKD0226-SCV5	04142240ECD7.D	04142240ECD7.D	NA	04/15/22 04:08
Secondary Cal Check	SKD0226-SCV6	04142241ECD7.D	04142241ECD7.D	NA	04/15/22 04:29

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 4/18/2022 11:15:14AM

ANALYSIS SEQUENCE

SKD0226

Instrument: ECD7 Element Column ID: j572i10975
Calibration ID: FD00045

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SKD0226-CAL1	0.25PPM AR1660	QC		1	K001286	K001296	
SKD0226-CAL2	0.02PPM AR1660	QC		2	K001292	K001296	
SKD0226-CAL3	0.05PPM AR1660	QC		3	K001293	K001296	
SKD0226-CAL4	1PPM AR1660	QC		4	K001088	K001296	
SKD0226-CAL5	0.1PPM AR1660	QC		5	K001294	K001296	
SKD0226-CAL6	0.5PPM AR1660	QC		6	K001295	K001296	
SKD0226-CAL7	0.25PPM AR1242	QC		7	K001287	K001296	
SKD0226-CAL8	0.25PPM AR1248	QC		8	K001288	K001296	
SKD0226-CAL9	0.25PPM AR1254	QC		9	K001289	K001296	
SKD0226-CALA	0.25PPM AR2162	QC		10	K001290	K001296	
SKD0226-CALB	0.25PPM AR3268	QC		11	K001291	K001296	
SKD0226-SCV1	AR1660SCV1	QC		12	K001263	K001296	
SKD0226-SCV2	AR1242SCV2	QC		13	K001264	K001296	
SKD0226-SCV4	AR1254SCV4	QC		14	K001266	K001296	
SKD0226-SCV3	AR1248SCV3	QC		15	K001265	K001296	
SKD0226-SCV5	AR2162SCV5	QC		16	K001267	K001296	
SKD0226-SCV6	AR3268SCV6	QC		17	K001268	K001296	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	14-APR-2022 09:46	04142201ECD7ECD7.d	1	DDT	
2	14-APR-2022 10:04	04142202ECD7ECD7.d	1	RINSE	
3	14-APR-2022 10:26	04142203ECD7ECD7.d	1	RINSE	
4	14-APR-2022 10:47	04142204ECD7ECD7.d	1	RINSE	
5	14-APR-2022 11:09	04142205ECD7ECD7.d	1	DDTS	
6	14-APR-2022 11:31	04142206ECD7ECD7.d	1	AR1254ICV1	
7	14-APR-2022 11:52	04142207ECD7ECD7.d	1	AR1660ICV2	
8	14-APR-2022 12:14	04142208ECD7ECD7.d	1	BKC0771-BLK1	
9	14-APR-2022 12:35	04142209ECD7ECD7.d	1	BKC0771-BS1	
10	14-APR-2022 12:57	04142210ECD7ECD7.d	1	22C0412-01	
11	14-APR-2022 13:18	04142211ECD7ECD7.d	5	22C0412-01RE1	
12	14-APR-2022 13:40	04142212ECD7ECD7.d	1	AR1248CCV1	
13	14-APR-2022 14:02	04142213ECD7ECD7.d	1	AR1660CCV2	
14	14-APR-2022 18:47	04142214ECD7.D	1	AR1660CCV2	
15	14-APR-2022 19:08	04142215ECD7.D	1	AR1660CCV2	
16	14-APR-2022 19:30	04142216ECD7.D	1	AR1660CCV2	
17	14-APR-2022 19:52	04142217ECD7.D	1	AR1660CCV2	
18	14-APR-2022 20:13	04142218ECD7.D	1	AR1660CCV2	
19	14-APR-2022 20:35	04142219ECD7.D	1	AR1660CCV2	
20	14-APR-2022 20:56	04142220ECD7.D	1	AR1660CCV2	
21	14-APR-2022 21:18	04142221ECD7.D	1	AR1660CCV2	
22	14-APR-2022 21:39	04142222ECD7.D	1	AR1660CCV2	
23	14-APR-2022 22:01	04142223ECD7.D	1	AR1660CCV2	
24	14-APR-2022 22:23	04142224ECD7.D	1	IB	
25	14-APR-2022 22:44	04142225ECD7.D	1	0.25PPMAR1660	
26	14-APR-2022 23:06	04142226ECD7.D	1	0.02PPMAR1660	
27	14-APR-2022 23:27	04142227ECD7.D	1	0.05PPMAR1660	
28	14-APR-2022 23:49	04142228ECD7.D	1	1PPMAR1660	
29	15-APR-2022 00:10	04142229ECD7.D	1	0.1PPMAR1660	
30	15-APR-2022 00:32	04142230ECD7.D	1	0.5PPMAR1660	
31	15-APR-2022 00:53	04142231ECD7.D	1	AR1242	
32	15-APR-2022 01:15	04142232ECD7.D	1	AR1248	
33	15-APR-2022 01:37	04142233ECD7.D	1	AR1254	
34	15-APR-2022 01:58	04142234ECD7.D	1	AR2162	
35	15-APR-2022 02:20	04142235ECD7.D	1	AR3268	
36	15-APR-2022 02:41	04142236ECD7.D	1	AR1660SCV1	
37	15-APR-2022 03:03	04142237ECD7.D	1	AR1242SCV2	
38	15-APR-2022 03:24	04142238ECD7.D	1	AR1248SCV3	
39	15-APR-2022 03:46	04142239ECD7.D	1	AR1254SCV4	
40	15-APR-2022 04:08	04142240ECD7.D	1	AR2162SCV5	
41	15-APR-2022 04:29	04142241ECD7.D	1	AR3268SCV6	
42	15-APR-2022 04:51	04142242ECD7.D	1	0.1 PPM DDTS	
43	15-APR-2022 05:12	04142243ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

ARI Job No.: DDT Method: PCB.m Instrument: ecd7.i Date: 14-APR-2022

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0946	04142201ECD7ECD7.d	DDT		1	NO MANUAL INTEGRATION
1004	04142202ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1026	04142203ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1047	04142204ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1109	04142205ECD7ECD7.d	DDTS		1	NO MANUAL INTEGRATION
1131	04142206ECD7ECD7.d	AR1254ICV1		1	NO MANUAL INTEGRATION
1152	04142207ECD7ECD7.d	AR1660ICV2		1	NO MANUAL INTEGRATION
1214	04142208ECD7ECD7.d	BKC0771-BLK1		1	NO MANUAL INTEGRATION
1235	04142209ECD7ECD7.d	BKC0771-BS1		1	NO MANUAL INTEGRATION
1257	04142210ECD7ECD7.d	22C0412-01		1	Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, Aroclor-1268, IS-BNB, IS-HBBP, Tetrachloro-m-xylene, Decachlorobiphenyl,
1318	04142211ECD7ECD7.d	22C0412-01RE1		5	Aroclor-1016, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, Aroclor-1262, Aroclor-1268, IS-HBBP, Decachlorobiphenyl,
1340	04142212ECD7ECD7.d	AR1248CCV1		1	NO MANUAL INTEGRATION
1402	04142213ECD7ECD7.d	AR1660CCV2		1	NO MANUAL INTEGRATION
1847	04142214ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1908	04142215ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1930	04142216ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1952	04142217ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2013	04142218ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2035	04142219ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2056	04142220ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2118	04142221ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2139	04142222ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2201	04142223ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2223	04142224ECD7.D	IB		1	NO MANUAL INTEGRATION
2244	04142225ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
2306	04142226ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
2327	04142227ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
2349	04142228ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION
0010	04142229ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
0032	04142230ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
0053	04142231ECD7.D	AR1242		1	NO MANUAL INTEGRATION
0115	04142232ECD7.D	AR1248		1	NO MANUAL INTEGRATION
0137	04142233ECD7.D	AR1254		1	NO MANUAL INTEGRATION
0158	04142234ECD7.D	AR2162		1	NO MANUAL INTEGRATION
0220	04142235ECD7.D	AR3268		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0241	04142236ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
0303	04142237ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
0324	04142238ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
0346	04142239ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
0408	04142240ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
0429	04142241ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
0451	04142242ECD7.D	0.1 PPM DDTS		1	NO MANUAL INTEGRATION
0512	04142243ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
0946	04142201ECD7ECD7.d	DDT		1	NO MANUAL INTEGRATION
1004	04142202ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1026	04142203ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1047	04142204ECD7ECD7.d	RINSE		1	NO MANUAL INTEGRATION
1109	04142205ECD7ECD7.d	DDTS		1	NO MANUAL INTEGRATION
1131	04142206ECD7ECD7.d	AR1254ICV1		1	NO MANUAL INTEGRATION
1152	04142207ECD7ECD7.d	AR1660ICV2		1	NO MANUAL INTEGRATION
1214	04142208ECD7ECD7.d	BKC0771-BLK1		1	NO MANUAL INTEGRATION
1235	04142209ECD7ECD7.d	BKC0771-BS1		1	NO MANUAL INTEGRATION
1257	04142210ECD7ECD7.d	22C0412-01		1	Aroclor-1016 [2C], Aroclor-1221 [2C], Aroclor-1232 [2C], Aroclor-1242 [2C], Aroclor-1248 [2C], Aroclor-1254 [2C], Aroclor-1260 [2C], Aroclor-1262 [2C], Aroclor-1268 [2C], Tetrachloro-m-xylene [2C],

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1318	04142211ECD7ECD7.d	22C0412-01RE1		5	NO MANUAL INTEGRATION
1340	04142212ECD7ECD7.d	AR1248CCV1		1	NO MANUAL INTEGRATION
1402	04142213ECD7ECD7.d	AR1660CCV2		1	NO MANUAL INTEGRATION
1847	04142214ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1908	04142215ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1930	04142216ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1952	04142217ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2013	04142218ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2035	04142219ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2056	04142220ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2118	04142221ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2139	04142222ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2201	04142223ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2223	04142224ECD7.D	IB		1	NO MANUAL INTEGRATION
2244	04142225ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
2306	04142226ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
2327	04142227ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
2349	04142228ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220414.b\220414.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0010	04142229ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
0032	04142230ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
0053	04142231ECD7.D	AR1242		1	NO MANUAL INTEGRATION
0115	04142232ECD7.D	AR1248		1	NO MANUAL INTEGRATION
0137	04142233ECD7.D	AR1254		1	NO MANUAL INTEGRATION
0158	04142234ECD7.D	AR2162		1	NO MANUAL INTEGRATION
0220	04142235ECD7.D	AR3268		1	NO MANUAL INTEGRATION
0241	04142236ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
0303	04142237ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
0324	04142238ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
0346	04142239ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
0408	04142240ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
0429	04142241ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
0451	04142242ECD7.D	0.1 PPM DDTS		1	NO MANUAL INTEGRATION
0512	04142243ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

Security Status Report

Date: 16-Apr-2022 17:10

04142224ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142225ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142226ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142227ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142228ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142229ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142230ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142231ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142232ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142233ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142234ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142235ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142236ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142237ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142238ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142239ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142240ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142241ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142242ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10
04142243ECD7.D	Data Unlocked	jrains, 16-Apr-2022 17:10

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKF0183	Instrument:	ECD7
		Calibration:	FD00045

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SKF0183-ICV1	06132209ECD7.D	06132209ECD7.D	NA	06/13/22 19:05
Initial Cal Check	SKF0183-ICV2	06132210ECD7.D	06132210ECD7.D	NA	06/13/22 19:26
Blank	BKE0708-BLK1	06132211ECD7.D	06132211ECD7.D	Water	06/13/22 19:47
LCS	BKE0708-BS1	06132212ECD7.D	06132212ECD7.D	Water	06/13/22 20:08
LCS Dup	BKE0708-BSD1	06132213ECD7.D	06132213ECD7.D	Water	06/13/22 20:29
SIB-SW-WR198-050522	22E0325-01	06132214ECD7.D	06132214ECD7.D	Water	06/13/22 20:51
SIB-SW-WR186-050522	22E0325-02	06132215ECD7.D	06132215ECD7.D	Water	06/13/22 21:12
SIB-SW-WR15-050522	22E0325-03	06132216ECD7.D	06132216ECD7.D	Water	06/13/22 21:33
SIB-SW-WR428-050522	22E0325-04	06132217ECD7.D	06132217ECD7.D	Water	06/13/22 21:54
SIB-SW-WR71-050522	22E0325-05	06132218ECD7.D	06132218ECD7.D	Water	06/13/22 22:15
Calibration Check	SKF0183-CCV1	06132219ECD7.D	06132219ECD7.D	NA	06/13/22 22:36
Calibration Check	SKF0183-CCV2	06132220ECD7.D	06132220ECD7.D	NA	06/13/22 22:57

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 6/15/2022 10:13:21AM

ANALYSIS SEQUENCE

SKF0183

Instrument: ECD7 Element Column ID: j572i10975
Calibration ID: FD00045

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SKF0183-ICV1	AR1254ICV1	QC		1	K001289	K001296	
SKF0183-ICV2	AR1660ICV2	QC		2	K001286	K001296	
BKE0708-BLK1	Blank	QC		3		K001296	
BKE0708-BS1	LCS	QC		4		K001296	
BKE0708-BSD1	LCS Dup	QC		5		K001296	
22E0325-01	SIB-SW-WR198-050522	8082A PCB Water 0.01	A 01	6		K001296	
22E0325-02	SIB-SW-WR186-050522	8082A PCB Water 0.01	A 01	7		K001296	
22E0325-03	SIB-SW-WR15-050522	8082A PCB Water 0.01	A 01	8		K001296	
22E0325-04	SIB-SW-WR428-050522	8082A PCB Water 0.01	A 01	9		K001296	
22E0325-05	SIB-SW-WR71-050522	8082A PCB Water 0.01	A 01	10		K001296	
SKF0183-CCV1	AR1248CCV1	QC		11	K001288	K001296	
SKF0183-CCV2	AR1660CCV2	QC		12	K001286	K001296	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\220613.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	13-JUN-2022 12:30	06132201ECD7.D	1	NEW SCINTVIALTBA	
2	13-JUN-2022 12:51	06132202ECD7.D	1	NEW SCINTVIALACI	
3	13-JUN-2022 13:12	06132203ECD7.D	1	NEW SCINTVIALTBA	
4	13-JUN-2022 17:20	06132204ECD7.D	1	RINSE	
5	13-JUN-2022 17:41	06132205ECD7.D	1	ACIDNEWSCINTVIAL	
6	13-JUN-2022 18:02	06132206ECD7.D	1	TBASNEWSCINTVIAL	
7	13-JUN-2022 18:23	06132207ECD7.D	1	DDT	
8	13-JUN-2022 18:44	06132208ECD7.D	1	BD	
9	13-JUN-2022 19:05	06132209ECD7.D	1	AR1254ICV1	
10	13-JUN-2022 19:26	06132210ECD7.D	1	AR1660ICV2	
11	13-JUN-2022 19:47	06132211ECD7.D	1	BKE0708-BLK1	
12	13-JUN-2022 20:08	06132212ECD7.D	1	BKE0708-BS1	
13	13-JUN-2022 20:29	06132213ECD7.D	1	BKE0708-BSD1	
14	13-JUN-2022 20:51	06132214ECD7.D	1	22E0325-01	
15	13-JUN-2022 21:12	06132215ECD7.D	1	22E0325-02	
16	13-JUN-2022 21:33	06132216ECD7.D	1	22E0325-03	
17	13-JUN-2022 21:54	06132217ECD7.D	1	22E0325-04	
18	13-JUN-2022 22:15	06132218ECD7.D	1	22E0325-05	
19	13-JUN-2022 22:36	06132219ECD7.D	1	AR1248CCV1	
20	13-JUN-2022 22:57	06132220ECD7.D	1	AR1660CCV2	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG/WO:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKD0226	Instrument:	ECD7
Calibration:	FD00045	Calibration Date:	04/15/2022

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SKD0226-SCV1 (Solid)			Lab File ID: 04142236ECD7.D			Analyzed: 04/15/22 02:41		
Decachlorobiphenyl	40.000	103	80 - 120	13.93	13.93183	-0.0018	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.861	5.859667	0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	119	80 - 120	14.179	14.1806	-0.0016	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.748	5.7475	0.0005	N/A	
SKD0226-SCV2 (Solid)			Lab File ID: 04142237ECD7.D			Analyzed: 04/15/22 03:03		
Decachlorobiphenyl	40.000	105	80 - 120	13.93	13.93183	-0.0018	N/A	
Tetrachlorometaxylene	40.000	102	80 - 120	5.86	5.859667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	121	80 - 120	14.18	14.1806	-0.0006	N/A	*
Tetrachlorometaxylene [2C]	40.000	99.4	80 - 120	5.747	5.7475	-0.0005	N/A	
SKD0226-SCV3 (Solid)			Lab File ID: 04142238ECD7.D			Analyzed: 04/15/22 03:24		
Decachlorobiphenyl	40.000	103	80 - 120	13.929	13.93183	-0.0028	N/A	
Tetrachlorometaxylene	40.000	102	80 - 120	5.859	5.859667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	118	80 - 120	14.18	14.1806	-0.0006	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.746	5.7475	-0.0015	N/A	
SKD0226-SCV4 (Solid)			Lab File ID: 04142239ECD7.D			Analyzed: 04/15/22 03:46		
Decachlorobiphenyl	40.000	102	80 - 120	13.932	13.93183	0.0002	N/A	
Tetrachlorometaxylene	40.000	98.8	80 - 120	5.86	5.859667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	117	80 - 120	14.18	14.1806	-0.0006	N/A	
Tetrachlorometaxylene [2C]	40.000	97.5	80 - 120	5.747	5.7475	-0.0005	N/A	
SKD0226-SCV5 (Solid)			Lab File ID: 04142240ECD7.D			Analyzed: 04/15/22 04:08		
Decachlorobiphenyl	40.000	105	80 - 120	13.93	13.93183	-0.0018	N/A	
Tetrachlorometaxylene	40.000	102	80 - 120	5.859	5.859667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	120	80 - 120	14.179	14.1806	-0.0016	N/A	
Tetrachlorometaxylene [2C]	40.000	98.9	80 - 120	5.746	5.7475	-0.0015	N/A	
SKD0226-SCV6 (Solid)			Lab File ID: 04142241ECD7.D			Analyzed: 04/15/22 04:29		
Decachlorobiphenyl	40.000	149	80 - 200	13.931	13.93183	-0.0008	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.859	5.859667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	192	80 - 200	14.182	14.1806	0.0014	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.746	5.7475	-0.0015	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG/WO:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKF0183	Instrument:	ECD7
Calibration:	FD00045	Calibration Date:	04/15/2022

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SKF0183-ICV1 (Water)			Lab File ID: 06132209ECD7.D			Analyzed: 06/13/22 19:05		
Decachlorobiphenyl	40.000	99.8	80 - 120	13.932	13.93183	0.0002	N/A	
Tetrachlorometaxylene	40.000	103	80 - 120	5.857	5.859667	-0.0027	N/A	
Decachlorobiphenyl [2C]	40.000	112	80 - 120	14.185	14.1806	0.0044	N/A	
Tetrachlorometaxylene [2C]	40.000	103	80 - 120	5.748	5.7475	0.0005	N/A	
SKF0183-ICV2 (Water)			Lab File ID: 06132210ECD7.D			Analyzed: 06/13/22 19:26		
Decachlorobiphenyl	40.000	99.0	80 - 120	13.931	13.93183	-0.0008	N/A	
Tetrachlorometaxylene	40.000	101	80 - 120	5.858	5.859667	-0.0017	N/A	
Decachlorobiphenyl [2C]	40.000	114	80 - 120	14.185	14.1806	0.0044	N/A	
Tetrachlorometaxylene [2C]	40.000	113	80 - 120	5.75	5.7475	0.0025	N/A	
BKE0708-BLK1 (Water)			Lab File ID: 06132211ECD7.D			Analyzed: 06/13/22 19:47		
Decachlorobiphenyl	0.020000	77.7	29 - 120	13.93	13.93183	-0.0018	N/A	
Tetrachlorometaxylene	0.020000	63.3	32 - 120	5.857	5.859667	-0.0027	N/A	
Decachlorobiphenyl [2C]	0.020000	84.6	29 - 120	14.183	14.1806	0.0024	N/A	
Tetrachlorometaxylene [2C]	0.020000	58.0	32 - 120	5.75	5.7475	0.0025	N/A	
BKE0708-BS1 (Water)			Lab File ID: 06132212ECD7.D			Analyzed: 06/13/22 20:08		
Decachlorobiphenyl	0.020000	55.1	29 - 120	13.93	13.93183	-0.0018	N/A	
Tetrachlorometaxylene	0.020000	67.0	32 - 120	5.856	5.859667	-0.0037	N/A	
Decachlorobiphenyl [2C]	0.020000	58.5	29 - 120	14.183	14.1806	0.0024	N/A	
Tetrachlorometaxylene [2C]	0.020000	60.8	32 - 120	5.747	5.7475	-0.0005	N/A	
BKE0708-BSD1 (Water)			Lab File ID: 06132213ECD7.D			Analyzed: 06/13/22 20:29		
Decachlorobiphenyl	0.020000	71.0	29 - 120	13.93	13.93183	-0.0018	N/A	
Tetrachlorometaxylene	0.020000	65.7	32 - 120	5.857	5.859667	-0.0027	N/A	
Decachlorobiphenyl [2C]	0.020000	79.9	29 - 120	14.183	14.1806	0.0024	N/A	
Tetrachlorometaxylene [2C]	0.020000	59.2	32 - 120	5.749	5.7475	0.0015	N/A	
22E0325-01 (Water)			Lab File ID: 06132214ECD7.D			Analyzed: 06/13/22 20:51		
Decachlorobiphenyl	0.020000	70.9	29 - 120	13.925	13.93183	-0.0068	N/A	
Tetrachlorometaxylene	0.020000	74.0	32 - 120	5.857	5.859667	-0.0027	N/A	
Decachlorobiphenyl [2C]	0.020000	76.7	29 - 120	14.178	14.1806	-0.0026	N/A	
Tetrachlorometaxylene [2C]	0.020000	67.3	32 - 120	5.749	5.7475	0.0015	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG/WO:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKF0183	Instrument:	ECD7
Calibration:	FD00045	Calibration Date:	04/15/2022

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
22E0325-02 (Water)			Lab File ID: 06132215ECD7.D			Analyzed: 06/13/22 21:12		
Decachlorobiphenyl	0.020000	54.5	29 - 120	13.926	13.93183	-0.0058	N/A	
Tetrachlorometaxylene	0.020000	67.8	32 - 120	5.856	5.859667	-0.0037	N/A	
Decachlorobiphenyl [2C]	0.020000	53.2	29 - 120	14.178	14.1806	-0.0026	N/A	
Tetrachlorometaxylene [2C]	0.020000	63.9	32 - 120	5.748	5.7475	0.0005	N/A	
22E0325-03 (Water)			Lab File ID: 06132216ECD7.D			Analyzed: 06/13/22 21:33		
Decachlorobiphenyl	0.020000	76.2	29 - 120	13.926	13.93183	-0.0058	N/A	
Tetrachlorometaxylene	0.020000	76.0	32 - 120	5.858	5.859667	-0.0017	N/A	
Decachlorobiphenyl [2C]	0.020000	85.8	29 - 120	14.179	14.1806	-0.0016	N/A	
Tetrachlorometaxylene [2C]	0.020000	68.6	32 - 120	5.75	5.7475	0.0025	N/A	
22E0325-04 (Water)			Lab File ID: 06132217ECD7.D			Analyzed: 06/13/22 21:54		
Decachlorobiphenyl	0.020000	75.7	29 - 120	13.928	13.93183	-0.0038	N/A	
Tetrachlorometaxylene	0.020000	70.6	32 - 120	5.858	5.859667	-0.0017	N/A	
Decachlorobiphenyl [2C]	0.020000	86.8	29 - 120	14.183	14.1806	0.0024	N/A	
Tetrachlorometaxylene [2C]	0.020000	64.1	32 - 120	5.749	5.7475	0.0015	N/A	
22E0325-05 (Water)			Lab File ID: 06132218ECD7.D			Analyzed: 06/13/22 22:15		
Decachlorobiphenyl	0.020000	74.8	29 - 120	13.928	13.93183	-0.0038	N/A	
Tetrachlorometaxylene	0.020000	70.7	32 - 120	5.857	5.859667	-0.0027	N/A	
Decachlorobiphenyl [2C]	0.020000	86.5	29 - 120	14.183	14.1806	0.0024	N/A	
Tetrachlorometaxylene [2C]	0.020000	64.2	32 - 120	5.749	5.7475	0.0015	N/A	
SKF0183-CCV1 (Water)			Lab File ID: 06132219ECD7.D			Analyzed: 06/13/22 22:36		
Decachlorobiphenyl	40.000	92.3	80 - 120	13.932	13.93183	0.0002	N/A	
Tetrachlorometaxylene	40.000	102	80 - 120	5.859	5.859667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.185	14.1806	0.0044	N/A	
Tetrachlorometaxylene [2C]	40.000	104	80 - 120	5.75	5.7475	0.0025	N/A	
SKF0183-CCV2 (Water)			Lab File ID: 06132220ECD7.D			Analyzed: 06/13/22 22:57		
Decachlorobiphenyl	40.000	95.3	80 - 120	13.931	13.93183	-0.0008	N/A	
Tetrachlorometaxylene	40.000	102	80 - 120	5.856	5.859667	-0.0037	N/A	
Decachlorobiphenyl [2C]	40.000	115	80 - 120	14.187	14.1806	0.0064	N/A	
Tetrachlorometaxylene [2C]	40.000	117	80 - 120	5.748	5.7475	0.0005	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKD0226	Instrument:	ECD7
		Calibration:	FD00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SKD0226-SCV1)		(Solid)		Lab File ID: 04142236ECD7.D				Analyzed: 04/15/22 02:41	
1-Bromo-2-Nitrobenzene	452418	3.546	485900	3.545	93	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	515306	14.296	571136	14.3	90	50 - 200	-0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	876156	3.99	914958	3.989	96	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1601839	15.066	1789656	15.073	90	50 - 200	-0.007	+/-0.50	
Secondary Cal Check (SKD0226-SCV2)		(Solid)		Lab File ID: 04142237ECD7.D				Analyzed: 04/15/22 03:03	
1-Bromo-2-Nitrobenzene	457203	3.545	485900	3.545	94	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	516535	14.296	571136	14.3	90	50 - 200	-0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	882202	3.99	914958	3.989	96	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1599222	15.066	1789656	15.073	89	50 - 200	-0.007	+/-0.50	
Secondary Cal Check (SKD0226-SCV3)		(Solid)		Lab File ID: 04142238ECD7.D				Analyzed: 04/15/22 03:24	
1-Bromo-2-Nitrobenzene	455246	3.544	485900	3.545	94	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	518144	14.296	571136	14.3	91	50 - 200	-0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	877845	3.989	914958	3.989	96	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1606747	15.066	1789656	15.073	90	50 - 200	-0.007	+/-0.50	
Secondary Cal Check (SKD0226-SCV4)		(Solid)		Lab File ID: 04142239ECD7.D				Analyzed: 04/15/22 03:46	
1-Bromo-2-Nitrobenzene	461501	3.546	485900	3.545	95	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	517452	14.299	571136	14.3	91	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	885861	3.991	914958	3.989	97	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	1609025	15.067	1789656	15.073	90	50 - 200	-0.006	+/-0.50	
Secondary Cal Check (SKD0226-SCV5)		(Solid)		Lab File ID: 04142240ECD7.D				Analyzed: 04/15/22 04:08	
1-Bromo-2-Nitrobenzene	461787	3.543	485900	3.545	95	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	516078	14.297	571136	14.3	90	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	872531	3.988	914958	3.989	95	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	1592530	15.066	1789656	15.073	89	50 - 200	-0.007	+/-0.50	
Secondary Cal Check (SKD0226-SCV6)		(Solid)		Lab File ID: 04142241ECD7.D				Analyzed: 04/15/22 04:29	
1-Bromo-2-Nitrobenzene	457862	3.544	485900	3.545	94	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	518312	14.296	571136	14.3	91	50 - 200	-0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	869658	3.989	914958	3.989	95	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1586735	15.065	1789656	15.073	89	50 - 200	-0.008	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKF0183	Instrument:	ECD7
		Calibration:	FD00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SKF0183-ICV1)		(Water)	Lab File ID: 06132209ECD7.D				Analyzed: 06/13/22 19:05		
1-Bromo-2-Nitrobenzene	375117	3.541	328439	3.542	114	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	596077	14.298	523034	14.298	114	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	777613	3.991	593641	3.99	131	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1792080	15.075	1450574	15.07	124	50 - 200	0.005	+/-0.50	
Initial Cal Check (SKF0183-ICV2)		(Water)	Lab File ID: 06132210ECD7.D				Analyzed: 06/13/22 19:26		
1-Bromo-2-Nitrobenzene	328439	3.542	328439	3.542	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	523034	14.298	523034	14.298	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	593641	3.99	593641	3.99	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1450574	15.07	1450574	15.07	100	50 - 200	0.000	+/-0.50	
Blank (BKE0708-BLK1)		(Water)	Lab File ID: 06132211ECD7.D				Analyzed: 06/13/22 19:47		
1-Bromo-2-Nitrobenzene	407783	3.542	328439	3.542	124	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	705430	14.297	523034	14.298	135	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	872389	3.991	593641	3.99	147	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	2203205	15.069	1450574	15.07	152	50 - 200	-0.001	+/-0.50	
LCS (BKE0708-BS1)		(Water)	Lab File ID: 06132212ECD7.D				Analyzed: 06/13/22 20:08		
1-Bromo-2-Nitrobenzene	431451	3.54	328439	3.542	131	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	750545	14.298	523034	14.298	143	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	917538	3.988	593641	3.99	155	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	2352317	15.071	1450574	15.07	162	50 - 200	0.001	+/-0.50	
LCS Dup (BKE0708-BSD1)		(Water)	Lab File ID: 06132213ECD7.D				Analyzed: 06/13/22 20:29		
1-Bromo-2-Nitrobenzene	432099	3.541	328439	3.542	132	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	747841	14.297	523034	14.298	143	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	922929	3.99	593641	3.99	155	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	2372854	15.071	1450574	15.07	164	50 - 200	0.001	+/-0.50	
SIB-SW-WR198-050522 (22E0325-01)		(Water)	Lab File ID: 06132214ECD7.D				Analyzed: 06/13/22 20:51		
1-Bromo-2-Nitrobenzene	419495	3.542	328439	3.542	128	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	620186	14.291	523034	14.298	119	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	894875	3.991	593641	3.99	151	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1759025	15.067	1450574	15.07	121	50 - 200	-0.003	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	22E0325
Client:	HydroGeoLogic, Inc.	Project:	Portland Harbor Superfund Site 2021-2022
Sequence:	SKF0183	Instrument:	ECD7
		Calibration:	FD00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SIB-SW-WR186-050522 (22E0325-02)		(Water)		Lab File ID: 06132215ECD7.D				Analyzed: 06/13/22 21:12	
1-Bromo-2-Nitrobenzene	438195	3.541	328439	3.542	133	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	619047	14.291	523034	14.298	118	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	911263	3.989	593641	3.99	154	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	1814813	15.066	1450574	15.07	125	50 - 200	-0.004	+/-0.50	
SIB-SW-WR15-050522 (22E0325-03)		(Water)		Lab File ID: 06132216ECD7.D				Analyzed: 06/13/22 21:33	
1-Bromo-2-Nitrobenzene	409681	3.543	328439	3.542	125	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	539552	14.291	523034	14.298	103	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	867002	3.992	593641	3.99	146	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	1355398	15.064	1450574	15.07	93	50 - 200	-0.006	+/-0.50	
SIB-SW-WR428-050522 (22E0325-04)		(Water)		Lab File ID: 06132217ECD7.D				Analyzed: 06/13/22 21:54	
1-Bromo-2-Nitrobenzene	419619	3.543	328439	3.542	128	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	644681	14.295	523034	14.298	123	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	891887	3.991	593641	3.99	150	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1867069	15.07	1450574	15.07	129	50 - 200	0.000	+/-0.50	
SIB-SW-WR71-050522 (22E0325-05)		(Water)		Lab File ID: 06132218ECD7.D				Analyzed: 06/13/22 22:15	
1-Bromo-2-Nitrobenzene	416594	3.542	328439	3.542	127	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	653830	14.293	523034	14.298	125	50 - 200	-0.005	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	878503	3.99	593641	3.99	148	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1868567	15.068	1450574	15.07	129	50 - 200	-0.002	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.			Project:	Portland Harbor Superfund Site 2021-2022
Matrix:	Water	Laboratory ID:	22E0325-02	File ID:	06132215ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 21:12
Solids:		Preparation:	EPA 3510C SepF	Instrument:	ECD7
Batch:	BKE0708	Sequence:	SKF0183		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	* 1	9.325	9.333	0.008	2873.8	0.005	50.
	2	9.496	9.5	0.004	3524.6	0.003	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	22E0325
Client:	HydroGeoLogic, Inc.			Project:	Portland Harbor Superfund Site 2021-2022
Matrix:	Water	Laboratory ID:	22E0325-03	File ID:	06132216ECD7.D
Sampled:	05/05/22 00:00	Prepared:	06/06/22 14:33	Analyzed:	06/13/22 21:33
Solids:		Preparation:	EPA 3510C SepF	Instrument:	ECD7
Batch:	BKE0708	Sequence:	SKF0183		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1260	* 1	11.077	11.08083	0.00383	8767	0.014	7.4
	2	11.705	11.70883	0.00383	22778.25	0.013	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 22E0325
Client: HydroGeoLogic, Inc.
Project: Portland Harbor Superfund Site 2021-2022

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SIB-SW-WR198-050522 22E0325-01	05/05/22 00:00	05/20/22 10:40	06/06/22 14:33	32	365	06/13/22 20:51	7	40	
SIB-SW-WR186-050522 22E0325-02	05/05/22 00:00	05/20/22 10:40	06/06/22 14:33	32	365	06/13/22 21:12	7	40	
SIB-SW-WR15-050522 22E0325-03	05/05/22 00:00	05/20/22 10:40	06/06/22 14:33	32	365	06/13/22 21:33	7	40	
SIB-SW-WR428-050522 22E0325-04	05/05/22 00:00	05/20/22 10:40	06/06/22 14:33	32	365	06/13/22 21:54	7	40	
SIB-SW-WR71-050522 22E0325-05	05/05/22 00:00	05/20/22 10:40	06/06/22 14:33	32	365	06/13/22 22:15	7	40	

* Indicates hold time exceedance.

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 22E0325
Client: HydroGeoLogic, Inc.
Project: Portland Harbor Superfund Site 2021-202
Matrix: Solid
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	0.00248	0.0100	ug/L
Aroclor 1016 [2C]	0.00248	0.0100	ug/L
Aroclor 1221	0.00248	0.0100	ug/L
Aroclor 1221 [2C]	0.00248	0.0100	ug/L
Aroclor 1232	0.00248	0.0100	ug/L
Aroclor 1232 [2C]	0.00248	0.0100	ug/L
Aroclor 1242	0.00248	0.0100	ug/L
Aroclor 1242 [2C]	0.00248	0.0100	ug/L
Aroclor 1248	0.00248	0.0100	ug/L
Aroclor 1248 [2C]	0.00248	0.0100	ug/L
Aroclor 1254	0.00248	0.0100	ug/L
Aroclor 1254 [2C]	0.00248	0.0100	ug/L
Aroclor 1260	0.00276	0.0100	ug/L
Aroclor 1260 [2C]	0.00276	0.0100	ug/L
Aroclor 1262	0.00276	0.0100	ug/L
Aroclor 1262 [2C]	0.00276	0.0100	ug/L
Aroclor 1268	0.00276	0.0100	ug/L
Aroclor 1268 [2C]	0.00276	0.0100	ug/L

Analytical Resources, LLC
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 22E0325
Client: HydroGeoLogic, Inc.
Project: Portland Harbor Superfund Site 2021-202
Matrix: Water
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	0.002	0.010	ug/L
Aroclor 1016 [2C]	0.002	0.010	ug/L
Aroclor 1221	0.002	0.010	ug/L
Aroclor 1221 [2C]	0.002	0.010	ug/L
Aroclor 1232	0.002	0.010	ug/L
Aroclor 1232 [2C]	0.002	0.010	ug/L
Aroclor 1242	0.002	0.010	ug/L
Aroclor 1242 [2C]	0.002	0.010	ug/L
Aroclor 1248	0.002	0.010	ug/L
Aroclor 1248 [2C]	0.002	0.010	ug/L
Aroclor 1254	0.002	0.010	ug/L
Aroclor 1254 [2C]	0.002	0.010	ug/L
Aroclor 1260	0.003	0.010	ug/L
Aroclor 1260 [2C]	0.003	0.010	ug/L
Aroclor 1262	0.003	0.010	ug/L
Aroclor 1262 [2C]	0.003	0.010	ug/L
Aroclor 1268	0.003	0.010	ug/L
Aroclor 1268 [2C]	0.003	0.010	ug/L

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: S-279N
Description: Tetrachloro-m-xylene
Lot: 0052481B-1
Solvent: N/A
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Jul 28, 2005
Expiration: Jul 28, 2015
Sample Size: 100 mg
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

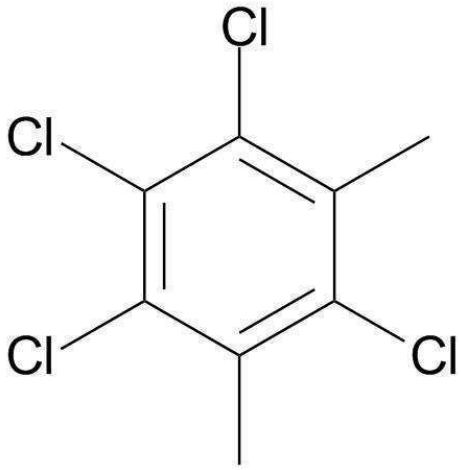
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/FID)	Prepared Concentration	Certified Analyte Concentration[1]
Tetrachloro-meta-xylene	877-09-8	96.0	N/A	N/A

Identification:

Molecular formula: C8H6Cl4
Molecular weight: 243.94



C000147
tetrachlormetaxylene
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] The Uncertainty calculated for this product is ±2.4%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Metrological traceability is established through in-house validated methods.

Purity, if stated, is equal to 100% minus found impurity components. Impurity components have not been identified.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: _____
Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

EXPIRED AccuStandard

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N
EXPIRATION: Jul 28, 2015
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1]	Certified Analyte Concentration[2]
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	100	N/A	N/A

2,

C000148
decachlorbiphenyl
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

* I 1768 A

Certified by: R. Cooper

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/254480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *K where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified 2 4-6-09 (JS)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: C000148 **Printed: 4/23/2015 11:54:44AM**

Description:	decachlorbiphenyl	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	na/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:03 by JGR
Vendor:	Accustandard	Lot #:	990521lb-ac
Vendor Catalog #:			

Comments

see i1768a
SOM calibrations added 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Decachlorobiphenyl [2C]	2051-24-3	1000000	ug/mL
Decachlorobiphenyl	2051-24-3	1000000	ug/mL
DCB 1660 [2C]	2051-24-3	1000000	ug/mL
DCB 1660	2051-24-3	1000000	ug/mL
DCB [2C]	2051-24-3	1000000	ug/mL
DCB (A) [2C]	2051-24-3	1000000	ug/mL
DCB (A)	2051-24-3	1000000	ug/mL
DCB	2051-24-3	1000000	ug/mL

Reviewed By Date

Certificate of Analysis

phenomenex ...breaking with tradition

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Access your MSDS and digital C of A at **www.phenomenex.com/mysupport**. Re-order at **www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101467
Description: Aroclor 1016
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL12908
Certification Date: November 19, 2018
Expiration Date: October 31, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1016	12674-11-2	1000	± 0.553%

J 06463
Read JR
06/18/21

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL13054
Certification Date: November 29, 2018
Expiration Date: November 30, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1260	11096-82-5	1000	± 0.520%

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101468
Description: Aroclor 1221
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14017
Certification Date: August 20, 2019
Expiration Date: August 31, 2027

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1221	11104-28-2	1000	± 0.553%

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101469
Description: Aroclor 1232
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14914
Certification Date: January 31, 2020
Expiration Date: January 31, 2028

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1232	11141-16-5	1000	± 0.738%

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
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Catalog No.:	AL0-101470	**Lot Number:**	CL14018
Description:	Aroclor 1242	**Certification Date:**	August 20, 2019
Storage:	4 °C	**Expiration Date:**	August 31, 2027
Provided As:	1 mL in 2 mL Ampoule in Isooctane		

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1242	53469-21-9	1000	± 0.553%

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
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Catalog No.:	AL0-101471	**Lot Number:**	CL15384
Description:	Aroclor 1248	**Certification Date:**	June 19, 2020
Storage:	4 °C	**Expiration Date:**	June 30, 2028
Provided As:	1 mL in 2 mL Ampoule in Isooctane		

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1248	12672-29-6	1000	± 0.520%

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

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Certified Reference Material

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Catalog No.: AL0-101472
Description: Aroclor 1254
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL13055
Certification Date: November 29, 2018
Expiration Date: November 30, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1254	11097-69-1	1000	± 0.247%

J 006470
Recd. pk
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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

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[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101474	**Lot Number:**	CL11330
Description:	Aroclor 1262	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1262	37324-23-5	1000	± 0.516%

J 00647
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2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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IL111/0613_US

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...breaking with tradition

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101475	**Lot Number:**	CL11331
Description:	Aroclor 1268	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1268	11100-14-4	1000	± 0.516%

J006472
Rec'd
06/18/21

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Chemical Testing Laboratory
Certificate No. 2427.03

Certificate of Analysis

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Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101467

Description: Aroclor 1016

Storage: 4 °C

Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL16555

Certification Date: June 22, 2021

Expiration Date: February 28, 2029

J012591

AROCLOR 1016
Expires 2/28/2029
Prepared By Joshua Rains 11/26/2021

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1016	12674-11-2	1000	± 0.310%

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL16516
Certification Date: March 4, 2021
Expiration Date: February 28, 2029

J012592
AROCLOR 1260
Expires 2/28/2029
Prepared By Joshua Rains 11/26/2021

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1260	11096-82-5	1000	± 0.553%

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Aroclor 1016 Solution

Product Number:	PP-282			**Page:**	1 of 1
Lot Number:	CR-0761	**Lot Issue Date:**	28-Feb-2017	**Expiration Date:**	31-Mar-2025

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1016	012674-11-2	NT01016	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1254 JR
Recd
02/05/22

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
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TUV USA, Inc.

Agilent

Certificate of Analysis

Product Name: Aroclor 1260 Standard

Product Number: PP-362-1 **Lot Issue Date:** 20-Jan-2021

Lot Number: 0006582048 **Expiration Date:** 28-Feb-2025

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1260	011096-82-5	NT01023	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

K 1255

Storage Conditions: Store at Room Temperature (15° to 30°C).

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert
No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026
Page: 1 of 1

www.agilent.com/quality/
CSD-QA-015.1

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Agilent

Certificate of Analysis
ISO Guide 34

Aroclor 1242 Solution

Product Number: PP-312 **Page:** 1 of 1

Lot Number: CS-6293 **Lot Issue Date:** 04-Jan-2019 **Expiration Date:** 31-Jan-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1242	053469-21-9	NT01020	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1256

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

ISO 17034

Agilent
Trusted Answers

Reference Material Certificate

Product Name:	Aroclor 1248 Standard	**Lot Number:**	0006626997
Product Number:	PP-342-1	**Lot Issue Date:**	17-Aug-2021
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	30-Sep-2025

Component Name	CERTIFIED VALUES Concentration		Expanded Uncertainty	CAS#	Analyte Lot
Aroclor 1248	100.3	±	0.5 µg/mL	012672-29-6	NT01582

Matrix: isooctane (2,2,4-trimethylpentane)

K1257

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Certificate of Analysis

Agilent

Aroclor 1254 Solution

Product Number: PP-352 **Page:** 1 of 1

Lot Number: CS-2321 **Lot Issue Date:** 04-May-2018 **Expiration Date:** 31-May-2026

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1254	011097-69-1	RM00922	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1258

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
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Agilent

Certificate of Analysis

Product Name: Aroclor 1221 Standard

Product Number: PP-292-1 **Lot Issue Date:** 28-Apr-2020

Lot Number: 0006535333 **Expiration Date:** 31-May-2024

Description:

This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system, and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1221	011104-28-2	RM04278	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1259

Traceability:

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:

This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:

This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:

Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:

The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 17025 Cert No. AT-1937

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Certificate of Analysis
ISO 17034

Aroclor 1262 Standard

Product Number: PP-372-1 **Page:** 1 of 1

Lot Number: 0006499800 **Lot Issue Date:** 04-Nov-2019 **Expiration Date:** 30-Nov-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent Technologies ISO 9001 registered quality system. A review of the gravimetric preparation data by our ISO 17025 accredited laboratory serves to verify the concentration of each analyte. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1262	037324-23-5	RM14263	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1260

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1232 Standard

Product Number: PP-302-1 **Page:** 1 of 1

Lot Number: CF-2197A **Lot Issue Date:** 05-Jul-2016 **Expiration Date:** 31-Aug-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1232	011141-16-5	NT01717	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1261

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

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Certificate of Analysis

Product Name: Aroclor 1268 Standard

Product Number: PP-382-1 **Lot Issue Date:** 09-Feb-2021

Lot Number: 0006587800 **Expiration Date:** 31-Mar-2029

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1268	011100-14-4	RM00937	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1262

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert
No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026
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